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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 January 10, 1940 No. 1

Personnel (Dec. 11 - Jan. 10) and Field Station (Dec. 1 - 31)

PERSONNEL ITEMS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

At the meetings of the American Association for the Advancement of Science and affiliated socieities, held in Columbus, Ohio, December 27, 1939, to January 2, 1940, the following papers were contributed by members of the staff of the Division:

Developmental Pattern of the Leaf Blade in 2N and 4N Zea mays as Related to the Structure of the Growing Point. E. C. Abbe, L. F. Randolph, and J. Einset.

Cytological Studies of Sporidial Fusion in Ustilago zeae. Donald H. Bowman.

Cross Inoculations with Loose Smut of Wheat. Ralph M. Caldwell and L. E. Compton.

Inoculation Experiments and Reaction of Inbred Lines of Corn to Ustilago zeae. James G. Dickson and Donald H. Bowman.

Insects in Relation to Root Rot and Basal Stem Rot of Cereals. E. W. Hanson and J. J. Christensen.

Effect of Fertilizers on the Development of Bunt of Wheat. E. W. Hanson and I. W. Tervet.

Physiologic Race Determination in Puccinia coronata avenae. C. H. Kingsolver and H. C. Murphy.

Toxicity of Selenium-Containing Plants to Red Spiders as a Means of Control. V. H. Morris, C. R. Neiswander, and J. D. Sayre.

Effect of the 1938 Crown Rust Epiphytotic on Yield, Bushel Weight, and Lodging of Oats in Iowa. H. C. Murphy, L. C. Burnett, and C. H. Kingsolver.

Differential Injury to Field Corn by the Corn Earworm (Heliothis obsoleta (Fab)). Reginald H. Painter and Arthur W. Brunson.

The Transference of Hessian Fly Resistance and Other Qualities of Marquillo Spring Wheat to Winter Wheat. Reginald H. Painter, Elmer T. Jones, C. O. Johnston, and John H. Parker.

Studies on Environmental Factors Affecting Infection and the Development of Bunt in Wheat. H. A. Rodenhiser and J. W. Taylor.

Storage Tests with Seed Corn. J. D. Sayre.

The Relation of Stomata to Dry Weight Production in Corn. J. D. Sayre.

Composition of Corn Stems in Relation to Stalk Rot. J. D. Sayre and V. H. Morris.

Monofactorially Conditioned Inviability of an Intergeneric Hybrid in the Triticinae. E. R. Sears.

Pre-Emergence and Post-Emergence Factors That Influence the Infection of Barley by Covered Smut and Nigra Loose Smut. V. F. Tapke.

Observations on a Noteworthy Helminthosporium Disease of Corn. Arnold J. Ullstrup.

Dr. Hurley Fellows, Mr. E. W. Hanson, and Dr. Roderick Sprague came to Washington after attending the meetings of The American Phytopathological Society in Columbus, Ohio, to confer with Division officials with regard to cereal foot rot research.

Dr. A. G. Johnson and Mr. E. P. Carter spent December 15 in Richmond, Va., in conference with the Thermal Research Corporation regarding the treatment of seed by heat.

RECENT PUBLICATIONS

A. E. Longley. Knob Positions on Corn Chromosomes. Jour. Agr. Res. 59(7): 475-490, figs. 1-4. October 1, 1939. (G-1142)

A. C. Dillman. Observations of Flax Diseases in 1939. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rep. 23(22): 366-367. December 1, 1939.

December 20, 1939

MEMORANDUM TO ALL CHIEFS OF BUREAUS AND OFFICES:

Department Regulations No. 1512 on the subject of "Attendance at Meetings," states in part:

> "When practicable the Department will provide adequate representation at meetings, conventions, conferences or other gatherings of farmers, scientific socieities, trade associations, State and Federal officials, etc., where the subject matter involved or other circumstances are such as to justify fully such representation, for the purpose of giving or acquiring information relating to the work of the Department.
>
> "Before requesting departmental approval for employees to attend meetings or approving attendance under their own authority, chiefs of bureaus, or those acting for them, will give due consideration to (a) the propriety of the Federal Department of Agriculture being represented; (b) whether the specific reasons for such attendance fully justify the expenditure of time on the part of the departmental employee; (c) economy in the expenditure of public funds for travel or other expenses; (d) avoidance of interference with or neglect of the primary work of the employee concerned by reason of attendance at any meeting; (e) avoidance of excessive or unnecessary departmental representation at any meeting; (f) coordination of representation, both as to numbers and character and extent of participation with representation of other departmental

units; and (g) conformity with departmental policy of the substance of any matter presented by a departmental representative involving departmental policy..."

Surveys show that attendance of Department employees at some meetings tends to be excessive. It is true that many employees pay their own expenses incident to such attendance and that the Government pays only their salaries while in attendance, but Government funds represented by salaries during such periods total in a year's time a large sum.

We receive criticism by persons outside of the Department with regard to the number of Department representatives at meetings compared with the total number in attendance. Unless administrative discretion involving substantially greater care, and caution is exercised, it is possible that drastic restrictions of authorization for attendance at meetings may be imposed to the detriment of work where attendance at meetings is essential.

It is difficult to supply a formula for determining the number of persons who should be authorized to attend meetings at Government expense. Certainly we cannot justify attendance of large numbers at any one meeting. It should be possible through better administrative management to arrange for those who are authorized to attend to make reports of meetings to others. Some organizations exist primarily for the technical and professional improvement of their members and while the Department is definitely interested at all times in encouraging the technical and professional improvement of all members of its staff it is not authorized to expend funds for this purpose, except where special authorization exists.

Accordingly, until further notice, attendance at meetings pursuant to Department Regulation 1512 shall be administered to provide:

Traveling expenses of not more than three persons in any one bureau will be paid for attendance at any one meeting, but attendance should be limited to the smallest number possible. However, the bureau chief, if he deems it necessary, may select one meeting a year to attend which he may designate a maximum of five persons whose expenses may be paid.

Attendance of not more than five persons at any one meeting will be authorized where, while no traveling expenses are paid, the employee is not required to take annual leave or leave without pay, but it should be limited to the smallest number possible. However, if he deems it necessary, the bureau chief may select one meeting each year where the limit of five persons shall not apply.

Every effort shall be made to make it possible for employees who desire to attend meetings on their own time for their technical or professional improvement and without expense to the Government, to do so through arranging for annual leave or leave without pay and for continuing their work where necessary during their absence.

Requests for authorization to attend meetings shall continue to be submitted on Form AD-61 in sufficient time to permit adequate consideration by the Secretary's Office. Bureaus are directed to coordinate requests with a view of reducing to the minimum, consistent with good administration, the expenditure of Government funds for the purpose of attending meetings.

H. A. Wallace
Secretary

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of Personnel
Washington, D. C.

December 27, 1939

P-66

MEMORANDUM TO CHIEFS OF BUREAUS AND OFFICES:

Subject: Departmental Circular No. 209

The Department is in receipt of Departmental Circular No. 209, issued December 12, 1939, by the Civil Service Commission on the subject of Section 9A, paragraphs (1) and (2) of the "Hatch Act." The Commission's communication reads:

> "Sec. 9A. (1) It shall be unlawful for any person employed in any capacity by any agency of the Federal Government, whose compensation, or any part thereof, is paid from funds authorized or appropriated by any Act of Congress, to have membership in any political party or organization which advocates the overthrow of our constitutional form of government in the United States.
>
> "(2) Any person violating the provisions of this section shall be immediately removed from the position of office held by him, and thereafter no part of the funds appropriated by any Act of Congress for such position or office shall be used to pay the compensation of such person."

(Signed) Roy F. Hendrickson,
Director of Personnel.

TO DIVISION PERSONNEL

The problem of publishing the results of our research is becoming increasingly acute. Funds regularly assigned to the Bureau of Plant Industry each year for its publications are sufficient to print only half to two-thirds of its available manuscripts. Usually the deficiency has been made up from other sources, but such good fortune cannot be expected to continue indefinitely. Now, with the present fiscal year only half gone, Bureau printing funds for the year are already fully obligated. Unless something drastic is done to relieve the situation, we may some day find ourselves with a heavy accumulation of unpublished results.

Additional funds for printing cannotbe anticipated regularly, nor can outside publication in scientific journals absorb a much greater share of our manuscripts than is now accepted. Our obligation to the public will not allow us to quit the research job unfinished, and it is unfinished until it is in final form, ready for printing. We must insist, therefore, that research be written up for publication as soon as experiments are completed. And we must not allow research results to pile up unpublished if there is any possible way to avoid it. To do this would subject us to adverse criticism and to a possible wiping out of support on the assumption that there is little point in getting results not made available for public use.

There is only one way to meet this situation, and that is to reduce manuscripts to a size where total output will balance publication funds. As a matter of fact, this will not be an unalloyed hardship. It will mean better and more thorough analysis and better writing. Also, the number of scientific papers is becoming so great that even the most narrowly specialized worker has difficulty in reading all new developments in his field. As a result, he reads the short papers and, after reading summaries, leaves the longer ones until later. Unless the paper is very important, that later occasion may never come. This situation, in itself, places an obligation upon us to reduce our papers to the minimum necessary to give essential background, methods, and results. Coupled with the printing situation, it really "turns on the heat".

I have, accordingly, asked the Division editorial committee to give serious attention to reducing the size of all papers coming to them. I am sure that each of you understands the necessity for doing this. Editors sometimes have a reputation for making changes merely to justify their job, but I want to assure you that our committee doesn't enjoy editorial work enough to care for this kind of activity. The minor number of changes made in manuscripts after leaving our Division demonstrates the sound quality of the work they do. The quality of the papers submitted in our Division is excellent as a whole, but much can still be done to reduce the average size, and in this I ask your help.

Sincerely,

M. A. McCall
Principal Agronomist in Charge,
and
Assistant Chief of Bureau.

MEMORANDUM RE USE OF TRANSPORTATION REQUESTS

Travelers should carefully read instructions on the backs of transportation requests, and also comply with Paragraphs 21, 35, and 36 of the Travel Regulations. Take advantage of all special, through, and round-trip rates, as excess costs occasioned by failure to obtain the lowest first-class rates will be charged to the traveler.

When special or round-trip ticket is secured, describe fully stating "and return" or other appropriate term, as well as the number of days for which the ticket is good. Where part of the travel is to be performed in coaches, transportation request should be issued to call for mixed travel, i.e., travel in Pullman and in coach as to be performed. The T. R. or an accompanying memorandum must clearly show points between which Pullman was used and points between which coach was occupied. If travel is not performed in accordance with T. R. as issued, send explanation with reimbursement voucher or with carbon copy of T. R. After the word "via" show complete route, with initials of carriers and junction points when necessary. In spaces provided for the purpose, show class of travel, number of persons, and in case of Pullman, space occupied.

Duplicate copies must show value and must be sent to this office promptly. They need not be sent one by one as used, but should not be held for any length of time. When used near the close of the month send very promptly because bills from carriers are then submitted. It is often necessary to telegraph for duplicate copies that have been held too long.

Tickets or portions thereof not used should be sent to Washington for redemption, with the following information for the portion of ticket that was used: Date and hour of arrival at and departure from each point, with class of service (Pullman or coach) in each instance.

H. S. Smith
Junior Administrative Assistant.

TO THE FIELD PERSONNEL

The accounting section of this Division appreciates your cooperation in handling vouchers as required to meet the needs of the new accounting system in the Bureau. We regret the delay in payment of salaries and vouchers. This delay is beyond the control of the Department since disbursements are now made direct by the Treasury Department, where, of course, the volume of work is heavy. We shall be glad to hear from you in cases of unusual delay.

H. S. Smith
Junior Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Dec. 31)

Weather conditions in December were very favorable for the emergence and early growth of fall-sown cereals. Germination of small grains started following rains on November 17 and 30. Temperatures during the first three weeks in December were much above normal so that rapid growth was made by grains. Maximum temperatures of 82° and 84° were recorded on December 7 and 10, respectively, which is an all-time record high temperature for December. Maximum temperatures were in the 70's for 11 additional days. The mean temperature for the month was 5.2° above normal, bringing the accumulated departure from normal for the year to 28.7°. Following these warm temperatures, cooler weather prevailed from the 24th to the 31st. The minimum of 34° on the 24th was followed by gradually lower minimums each day to a minimum for the month of 19° on the 29th.

The precipitation for the month was only 0.7 inch, which is 1.71 inches below normal for December. This added deficiency brings the accumulated departure from normal for the year to -6.97 inches. Snow fell for about an hour on the 24th but did not remain on the ground.

Small grains are now in fairly good winter condition but sufficient moisture has not yet been received to produce a good "bottom season" or to fill stock tanks.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Jan. 2)

Sufficient moisutre for germination of winter wheat finally fell in December 22 and 24 in the form of rain and about 8 inches of snow, totaling 0.83 inch of precipitation in all. The weather has continued cool and some snow still remains on the ground so, of course, no germination of wheat has taken place since the storm. The snow was general over Oklahoma but was heaviest in the northwestern portion, 14 inches being recorded at Boise City in the western edge of the Panhandle. Although welcome, the moisture may have come too late for a wheat crop. Normally developed wheat fields are decidedly rare this year except in very scattered local areas. Wheat has germinated in most fields 50 to 100 miles east and southeast of Woodward, although very little growth is evident. West, north, and northwest of Woodward it is difficult to find fields of wheat that have emerged and no wheat pasture is available. In view of such conditions the chances of a good wheat crop are slim. Only ideal moisture conditions will enable wheat that emerged in January to produce a large yield.

The precipitation in 1939 varied erratically from the average. A comparison of the 1939 precipitation records by months with the 26-year (1914-39) station average is interesting.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1939	2.84	1.01	1.59	4.38	1.66	3.97	2.58	0.85	0.00	0.09	0.44	0.83	20.24
26-year av. (1914-39)	.72	.71	1.48	2.37	3.60	3.07	1.91	2.35	2.62	2.19	1.32	.67	22.99

A glance at the 1939 and average precipitation for September and October indicates that the average rainfall in the Great Plains means little other than to tell what has happened in the past.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Dec. 24)

Kansas has had some relief from drought during the past 24 hours. Snow ranging in depth from one to six inches has fallen over the western half of the State. In many localities this was preceded by rain, which brought the total moisture up from 0.3 to 0.5 inch. This is the first measurable moisture since August in some western counties. The moisture should be sufficient to germinate part of the winter wheat that has been sown since October but has failed to germinate previously. On a recent trip to Ness City, the writer observed almost no green wheat fields west of Ellsworth. Thousands of acres of sown fields were seen but nearly all were as free from green growth as newly planted fields.

The effect of the drought is clearly reflected in the December 20 estimate on acreage and condition of winter wheat in Kansas. Only about 12,500,000 acres were sown in the fall of 1939. This is the smallest acreage since 1934. The mid-December condition was estimated at only 35 percent of normal, the lowest ever recorded for this time of year.

Temperatures remain abnormally high for the time of year throughout the central and southern Great Plains area. At Manhattan so far, there have been no temperatures below 16° and only light freezes of short duration have occurred.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Dec. 16)

The drought which began last August has not yet been broken. The condition of wheat in western Kansas is unsatisfactory. Even on fallowed fields only partial stands have been secured. The wheat on cropped land will have little chance even with a normal moisture supply later because of the poor condition of the seedbed.

There is sufficient feed in the country to take care of the livestock. Enough seed of the adapted varieties of sorghum was produced to take care of the planting requirements for 1940. The recovery of grass in native pastures has been quite satisfactory where deferred grazing has been practiced.

The preparation of the annual report is under way and is nearing completion.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Jan. 3)

December 1939 was the warmest December on record during the 26 years records have been made at Mandan. No warmer December is on record at Bismarck since 1881. The mean temperature was 26°, which is 12° above the 26-year average. No temperature below zero was recorded until the 27th. The maximum temperature in December was 66° on the 6th and the minimum -12° on the 31st.

Only traces of precipitation were recorded during the first half of December. The snowfall during the last half of December amounted to 0.31 inch of precipitation, which is 0.12 inch below the December average.

The precipitation for the entire year was 13.99 inches, which is 1.14 inches below the 26-year average.

The average wind velocity for December was 3.4 miles, which is 0.5 below any previous record for December and 2.1 below average.

Farmers having wind chargers for their radios are complaining that there are too many wind chargers in the country for the amount of wind we have now.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Jan. 3)

The month of December was dry and one of the warmest on record, the mean temperature being 26.4° or about 10° above normal. The maximum temperature was 68° on the 6th and the minimum, -11° on the 28th. The precipitation was 0.21 inch.

The precipitation for the months September to December, inclusive, was only 0.79 inch, being the lowest on record for this period at this station. The total precipitation for the year 1939, however, was 15.75 inches, more than 1/2 inch above the normal of 15.20 inches.

The ground was bare until the last week in December and there are now only about 2 inches of snow on the ground.

Below are presented yields of 15 sorghum varieties planted May 26.

Variety	Air-dry fodder[1/] (Lbs.)	Yield (Bu. per acre)
Sorgo		
Dakota Amber	4,095	----
Black Amber	6,135	----
Red Amber	5,304	----
Waconia	5,734	----
Early Sumac	6,017	----
Cheyenne	4,891	----
Fremont	4,805	----
Grain sorghum		
Improved Ceres	-----	14.4
Dwarf Freed x Dwarf Feterita (U.C. 336)	-----	3.5
Sonner milo	-----	8.1
Early kafir	-----	8.4
Extra Early Pink kafir	-----	9.5
Highland kafir	-----	7.2
Yellow Highland	-----	11.1
Dwarf Freed x Dwarf Feterita 151-4-6	-----	13.7

1/ The yield of dry fodder per acre was obtained from the total green weight by grinding samples of each variety with the feed grinder and hanging in the machine shed 4 weeks to dry.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (Dec. 18)

Winter wheat fields in the Palouse and Walla Walla areas are now in fair to good condition. General rains since December 8 and totaling 2.49 inches to date at Pullman revived the severely-wilted seedlings which were on land other than summer fallow. The wheat which emerged on summer fallow during the light mid-October shower, however, continued to grow satisfactorily during the November-early December drought. Conditions in the area around Lind and similar areas were too dry to encourage the seeding of much winter wheat.

The winter wheat nursery on land green-manured with peas was watered during the period from December 3 to 7 because portions of many rows (in the cloddiest parts) were severely wilted, while the remaining portions showed no distinct evidence of a shortage of moisture. This nursery is now in excellent condition.

The 3600-row bunt-inheritance nursery (on summer fallow) has had favorable germinating conditions for high bunt infection and favorable growing conditions thereafter. This nursery consists of four generations of hybrid material originating from Oro and Turkey x Florence, and involves the races T_{11} and L_8.

The varietal nursery at Walla Walla (on summer fallow) is in excellent condition. In the nursery at Pomeroy (on sweetclover land) the seedlings are recovering fairly satisfactorily from a severely wilted condition.

Each variety and hybrid in the winter-wheat varietal nursery has been seeded in the greenhouse for mildew and rust studies.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Dec. 18)

The general lack of moisture in the State becones more and more acute. Not more than a trace of moisture has fallen since the 6th of October, while the weather has been considerably warmer than average. Even the highest mountain peaks are bare at this time, a condition seldom seen so late in the year.

Winter wheat in Cache Valley still appears to be in good condition. Late-seeded plots where moisture was available are now emerging and growing rapidly for this time of year. Some reports indicate that the drought may have injured winter wheat in some parts of the State where the growth is excessive. No such instances have been observed by members of the Agronomy department.

The mean temperature still continues to be considerably above normal, causing spring flowers to bloom.

The annual report for 1939 should be completed in the next few days.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Dec. 23)

Crop prospects for the new year in California are not very hopeful. The normal July-December precipitation is 5.85 inches, but so far only 1.38 inches have been recorded. Of this, only one shower of 0.63 inch on December 9 was effective. It encouraged completion of experimental plantings. Plantings made previously in the dust are having trouble getting through the crust formed by the rain and subsequent dry winds, while those made after the rain are also threatened by absence of subsoil moisture. The last crop year was the driest ever known here with only 40 percent of the normal 17-inch rainfall. There is equipment for irrigating all experimental nursery material at Davis, but extensive breeding and genetic studies on hessian fly, conducted cooperatively with the Bureau of Entomology and Plant Quarantine, seem doomed, along with several minor projects not accessible to irrigation water. This, according to plans, was to be "the big year" for hessian fly work including, among other things, the selection for commercial increase of homozygous lines having two Dawson-resistance factors from F_3 populations backcrossed 5 times to Poso or Big Club. Another threat is the likelihood of insufficient numbers of hessian fly for conducting studies for several seasons hereafter.

This experiment station is engaged in distributing 28 tons of White Federation 38 and 75 tons of Baart 38. Since there is general interest in the breeding scheme used, it is outlined here for one of the improved varieties. The crosses made were: $[(\text{Martin} \times \text{Baart}) \times \text{Baart}^6] \times [(\text{Hope} \times \text{Baart}) \times \text{Baart}^3]$ from which 157 F_3 lines homozygous for resistance to bunt and rust were composited and named Baart 38. The exponents indicate the number of times resistant segregates were backcrossed with the Baart parent. Seed is being released in lots of one ton or more. Approximately one-half the lot will be grown under irrigation.

No cereal diseases except mildew have been observed to date, even in October-sown nurseries. This, too, is causing some concern, for large populations of genetic material for study of scald resistance in barley are being grown. Normally, scald is abundant at this season. Cultures are being started in the laboratory and greenhouse.

Atsel barley, sown October 15, is heading.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 February 10, 1940 No. 2

Personnel (Jan. 11 - Feb. 10) and Field Station (Jan. 1-31)

PERSONNEL ITEMS

Dr. K. S. Quisenberry came to Washington on February 1 to confer with Division personnel on wheat research.

Mr. Clarence I. Seely arrived in Washington on January 29 to confer with officials of the Division regarding noxious weed research.

Dr. A. J. Ullstrup was in Washington recently to confer with Bureau personnel on corn research and corn diseases.

Dr. G. A. Wiebe spent February 9 and 10 in Brooklyn, N. Y., recording data on experimental brews of two varieties of barley for Malt Research Institute.

RECENT PUBLICATIONS

I. M. Atkins. Reaction of Winter Wheat Varieties to Loose Smut Infection at Texas Substation No. 6, Denton, Tex., 1938 and 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops & Dis. [Unnumb. Pub.] 4 pp. December 28, 1939. [Mimeographed.]

J. Allen Clark. Registration of Improved Wheat Varieties, XIII. Jour. Amer. Soc. Agron. 32(1): 72-75. January 1940.

_____ Results of Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1939, with Averages for 1929 to 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops & Dis. [Unnumb. Pub.] 42 pp. January 10, 1940. [Mimeographed.]

Annie M. Hurd-Karrer. Hydrogen-Ion Concentration of Leaf Juice in Relation to Environment. Amer. Jour. Bot. 26(10): 834-846. December 1939.

_____ Comparative Susceptibility of Crop Plants to Sodium Chlorate. U. S. Dept. Agr. Tech. Bul. 648, 15 pp. January 1940.

Merle T. Jenkins. The Segregation of Genes Affecting Yield of Grain in Maize. Jour. Amer. Soc. Agron. 32(1): 55-63, fig. 1. January 1940.

N. E. Jodon. Results of Experiments with New Varieties of Rice Developed in Recent Years. Crowley Daily Signal, Crowley, La. 41(73), pp. 1, 2. January 10, 1940. (Cooperative investigations of the Louisiana Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

K. S. Quisenberry and J. W. Taylor. Growing Buckwheat. U. S. Dept. Agr. Farmers' Bul. 1835, 17 pp., 10 figs. November 1939.

H. A. Rodenhiser and K. S. Quisenberry. Summary of the Great Plains Uniform Winter Wheat Nursery, 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops & Dis. [Unnumb. Pub.] 3 pp. January 18, 1940. [Mimeographed.]

S. R. Snider. Determination of Amino Nitrogen in Malt Extracts. Cereal Chem. 17(1): 121-129. January 1940.

Roderick Sprague. Cercosporella Foot Rot of Winter Grains in the Pacific Northwest. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops & Dis. [Unnumb. Pub.] 13 pp. December 8, 1939. [Mimeographed.] (Investigations conducted cooperatively by the Division of Cereal Crops and Diseases and the Idaho, Oregon, and Washington agricultural experiment stations.)

T. R. Stanton. Registration of Varieties and Strains of Oats, IX. Jour. Amer. Soc. Agron. 32(1): 76-82. January 1940.

Mention of the paper entitled "Observations on Differential Susceptibility of Corn Hybrids to Aphis maidis Fitch," by E. V. Walter and A. M. Brunson, presented at the meetings of the American Association for the Advancement of Science and affiliated societies, held in Columbus, Ohio, December 27, 1939, to January 2, 1940, was inadvertently omitted from the list in the Cereal Courier vol. 32, no. 1, January 10, 1940.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Feb. 5)

Rather mild, dry weather prevailed in December. The maximum temperature was 78°, the minimum 30°, and the average mean 56°. Ice formed on two days. In December 1938, the maximum was 76°, the minimum 29°, and the average mean 53°. Ice formed on four days.

The total precipitation of 3.80 inches is 0.96 inch more than for the same period last year, and 2.04 inches less than the 29-year average for December.

The total precipitation for the year was 48.92 inches, which is 5.09 inches less than in 1938, and 11.44 inches less than the annual average for the past 29 years. There is likely to be a shortage of fresh water for irrigation next season unless the situation is relieved by heavy rains in the early part of the year. To insure an adequate water supply for irrigation, it is very important that the natural reservoir contain relatively fresh water before the irrigation season begins.

(Feb. 6)

The weather was exceptionally cold throughout most of January. The average maximum temperature was 49°, the average minimum 30°, and the average mean 40°. The minimum temperature was 16° on the 19th. Ice formed on 22 days. In January 1939 the average maximum was 65°, the average minimum 46°, and the average mean 56°. Ice formed on 1 day.

The minimum temperature is the lowest recorded since January 22, 1918. Earlier in the same month of 1918, 9° and 12° were recorded. In comparing the records for January 1918 and January 1940, it is noted that the minimum in 1918 was much lower than in 1940. The average maximum, however, for the same month was 7° higher, the average minimum 2° higher, and the average mean 4° higher. In January 1918 ice formed on 18 days and the evaporation tank was frozen over for 3- and 2-day periods, while in January 1940 ice formed on 22 days and the tank was frozen over for 10 consecutive days, January 19 to 28, inclusive.

On January 18, 1940, the temperature dropped from a high of 61° to 32° in a space of two hours. A light rain began to freeze as it fell. The precipitation turned into sleet and snow, which continued to fall into the night. On the morning of the 19th the ground was covered with sleet and snow to a depth of about 1/4 inch.

After three days of practically clear weather, sleet began falling early on the morning of the 23d, interspersed with rain, which froze as it fell. Snow began falling about 10:30 a.m. and continued until about noon. It continued to sleet into the night. On the morning of the 24th the ground was covered with sleet and snow to a depth of about 1 1/4 inches. Shrubbery, grass, and trees were coated with about one-half inch of ice, which did not disappear entirely until the 27th. Ice remained on the ground, in shaded places, until February 3.

The severe weather caused great suffering among cattle that were not protected and fed. No doubt many will die because of the exposure and subsequent lack of feed because of the destruction of vegetation.

There has been a shortage of fuel because of transporation delays owing to heavy snow in the regions from which coal is obtained. Wood had to be resorted to, and it is not plentiful. The Station has been out of coal since the latter part of the month. If the severe weather had continued it would have been necessary to suspend operations.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)
(Feb. 5)

The precipitation in January was 0.61 inch, including two small snows. The minimum temperature was 6°, the maximum 71°, and the mean 34.7°. The mean temperature for January is 9.4° below normal and the third lowest on record. The mean minimum temperature of 21.8° for the month is the lowest on record. During the period from January 18 to 28 the minimum temperatures ranged from 18° to 6°. The precipitation for the month was 1.72 inches below normal but adequate for the crops in their dormant condition. The deficiency of moisture has been corrected at this writing by a slow penetrating rain of 1.67 inches February 2 to 4.

The final influence of the extremely low temperatures in January cannot yet be fully determined. During the past week growth has started and it appears that damage of a serious nature will result only in the more tender varieties of oats and barley. All fall-sown oats will be thinned to some extent, and in the experimental nursery varieties such as Bond and Victoria probably are killed. The Red Rustproof types as well as the new rust-resistant strains survived fairly well. An increase field of Fulghum x Victoria selection 13-34-33 appears only slightly injured. Field plantings of Wintex barley seem to have survived, although no doubt some thinning occurred. No injury to wheat is indicated.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Feb. 3)

The weather here continues to be unusual. Following one of the driest falls in history, moisture which fell in the form of snow on December 22 remained on the ground continuously until January 29. Approximately 3 inches of snow fell again last night and is continuing as a mist this morning.

Wheat seeded November 1 or earlier on fallow emerged to fairly good stands under the snow, whereas wheat seeded moderately deep on cropped land is only sprouting now regardless of date of seeding. Inasmuch as such wheat is not likely to emerge much before March 1, prospects of a crop are slim. Some wheat seeded shallow on cropped land is emerging.

The cold weather of the past month appears to have done little or no damage to grain even though many sprouts (still under ground) were 2 inches or more long. Many of the long sprouts probably will die owing to exhaustion of the food in the kernel before they have emerged rather than directly from low temperatures.

The temperatures in January were not especially severe. The cold weather came on gradually and -6° was the lowest recording. In a few places where the snow was 8 or more inches deep the ground did not freeze. In contrast, bare ground froze to a depth of 18 inches, freezing many water mains and meters in town.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Jan. 23)

Severe winter weather invaded Kansas on December 25 and there has been no break in the frigid temperatures since that day. Fortunately, the low temperatures were preceded by heavy snow in all parts of the State and the winter wheat crop is blanketed by a 3- to 6-inch covering. In general, the quantity of snow was greater in southwestern counties, where moisture shortage was acute, than at Manhattan.

The daily temperatures since December 25 have been low in all parts of the State. At Manhattan, the minimum has been near or below zero each day since January 1. The lowest temperature so far recorded was -11° on January 17. During this cold period snow has fallen several times and highways have been hazardous and occasionally blocked.

The effect of the snow and low temperatures on the winter wheat crop of the State is unknown. Optimistic reports from western counties have appeared in the press from time to time but nothing seems definite. There even have been reports of farmers drilling wheat in the snow but that probably is not widespread. The Agronomy Department of the Kansas Agricultural

Experiment Station has issued warnings that not much can be expected from wheat drilled now, nor from the seed already in the ground but ungerminated.

Cereal rust work in the greenhouse at Manhattan is well advanced. A large number of oat hybrids in advanced generations have been tested with physiologic races 1 and 6 of crown rust and 2 and 5 of stem rust. Susceptible plants have been eliminated and it is hoped seed of remaining plants can be matured early enough to sow in the 1940 nursery.

The identification of physiologic races of leaf rust of wheat collected in the 1939 crop is nearly completed. For the first time since these studies were started in 1921 physiologic race 9 seems not to have been the most abundant one in the Plains area. Physiologic race 28 proved to be one of the more important in 1940.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Feb. 3)

The month of January was comparatively free from storms and severe winds. The mean temperature was 3.2°, or over 7° below normal. Steady cold weather prevailed until the last week, when a January thaw removed most of the 2 inches of snow which up to that time had afforded scant protection to what winter wheat was aboveground. The precipitation was but 0.04 inch. Snow is falling now and perhaps February will break the drought that has prevailed since the middle of August.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (Feb. 2)

During the past week the Palouse region has been experiencing spring-like weather. The minimum temperature for the winter at Pullman was 14°. The precipitation during December and January, totaling 5.38 inches, was mostly rain.

In the nursery at Pullman, winter oats and volunteer field peas show considerable winter-killing, while winter barleys and wheats have full stands. Federation, a spring variety, appears badly frost-bitten but none of the seedlings appears to have been killed.

In surrounding fields the volunteer wild oats have not been completely winter-killed. Consequently, unless more freezing weather occurs while the plants are unprotected by snow there may be some badly infested fields of winter wheat. Last fall several fields of fall-sown wheat had almost as many seedlings of wild oats as of wheat.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Jan. 16)

Despite a warm, dry autumn the annual precipitation for 1939 totaled 13.68 inches, which is less than 3 inches below a 20-year average. The first snow to cover the ground fell on December 24 but was all melted by January 1. Snow and rain recorded since January 1 have totaled 2.35 inches. Only 2 to 3 inches of snow now remain of the several good coverings that have fallen.

The watersheds of Utah on January 1 were reported the deepest for 25 years. The already good snowfall should be of extreme significance to next season's water supply.

More snow was found in Box Elder County. Winter wheat there has been covered with 4 to 6 inches since the first heavy snowfall on December 24.

Except for rainfall, the year 1939 was average in most other respects.

Corn silage yields from outlying counties showed again that adapted hybrid corn varieties from Ohio, Illinois, Indiana, and adjoining States gave the best yields under Utah conditions. U. S. Hybrid 52 will again be recommended for commercial growing.

The average yields for hybrids and standard varieties in three counties were as follows:

Variety	Green tons per acre	Dry tons acre yields
Hybrids		
U. S. Hybrid 44	21.7	6.87
U. S. Hybrid 52	21.0	6.74
Funk G 94	22.4	6.64
Funk G 53	21.2	6.33
Standard		
Improved Leaming	15.1	4.87
Minnesota 13	13.2	4.26

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Jan. 7)

December 1939 was the hottest December on record since this Station was started in 1892. The mean temperature for last month was 56.28°, or over 6° above the normal. There was also recorded the latest first killing frost in the fall since 1892. The first killing frost in the fall normally occurs on November 19, while last month it was on December 23. The rainfall was 0.27 inch compared with the normal of 1.07 inches.

The sorghums have all been threshed both here and at Mesa. The seeding of the yield nursery was started last week.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 March 10, 1940 No. 3

Personnel (Feb. 11 - Mar. 10) and Field Station (Feb. 1 - 29)

PERSONNEL ITEMS

Dr. Harry V. Harlan left Washington March 10 for his annual trip through the barley-producing States to take notes on experimental barley seedings and to confer with State and Federal workers concerning cooperative barley research.

Dr. M. T. Jenkins left Washington on March 10 to make stops in Tennessee, Louisiana, Missouri, Kansas, Iowa, Illinois, Indiana, and Ohio for the purpose of conferring with Federal workers and officials of agricultural experiment stations on the cooperative corn improvement program.

Mr. Jenkin W. Jones left Washington February 16 to attend a conference of officials of the Rice Experiment Station and the Louisiana Agricultural Experiment Station concerning the cooperative rice production and improvement program. Mr. Jones returned on February 24.

Dr. A. G. Johnson and Mr. E. P. Carter were in Richmond, Va., March 4 and 5 in connection with cooperative research with officials of the Thermal Research Corporation regarding the treatment of seed by heat.

On February 7 a conference of State and Federal sorghum workers in the States of Kansas, Nebraska, Oklahoma, and Texas was held at Manhattan, Kans., for the purpose of planning general objectives and future work in sorghum improvement. The members of the Division who were authorized to attend included the following: Mr. E. G. Heyne, Dr. John H. Martin, Mr. J. R. Quinby, Mr. J. B. Sieglinger, Mr. J. C. Stephens, and Mr. A. F. Swanson.

From Manhattan, Dr. Martin went by way of Woodward, Okla., to Lawton, Okla., to prepare planting plans for the sorghum breeding experiments at Lawton.

Dr. S. C. Salmon and Mr. L. W. Kephart attended a conference at Lincoln, Nebr., from February 26 to 29 to discuss the cooperative weed research project that has been under way for the past four years in order to determine future plans. About 35 persons from most of the central States and from as far west as the Pacific coast were in attendance.

RECENT PUBLICATIONS

A. L. Clapp, R. W. Jugenheimer, H. D. Hollenbeak, and L. N. Skold. Kansas Corn Tests, 1939. Kans. Agr. Expt. Sta. Bul. 288, 29 pp., 1 fig. January 1940. (Cooperative investigations of the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

R. G. Dahms and J. H. Martin. Resistance of F_1 Sorghum Hybrids to the Chinch Bug. Jour. Amer. Soc. Agron. 32(2): 141-147, fig. 1. February 1940. (Cooperative investigations between the Oklahoma Agricultural Experiment Station and the Bureaus of Plant Industry and Entomology and Plant Quarantine of the U. S. Dept. of Agriculture.)

E. G. Heyne and H. H. Laude. Resistance of Corn Seedlings to High Temperatures in Laboratory Tests. Jour. Amer. Soc. Agron. 32(2): 116-126, figs. 1-6. February 1940. (Joint contribution from the Department of Agronomy, Kansas Agricultural Experiment Station, Manhattan, Kans., and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, cooperating.)

H. H. McKinney. Vernalization and the Growth-Phase Concept. Bot. Rev. 6(1): 25-47. January 1940.

Roderick Sprague. A Third Species of Mastigosporium on Gramineae. Mycologia 32(1): 43-45, fig. 1. January-February 1940. (Cooperative investigations by the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and Oregon Agricultural Experiment Station.)

J. C. Stephens and J. R. Quinby. The D Rs P Linkage Group in Sorghum. Jour. Agr. Res. 59(10): 725-730. November 15, 1939. (G-1139) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Texas Agricultural Experiment Station at Substation No. 12, Chillicothe, Tex.)

G. H. Stringfield, R. D. Lewis, and H. L. Pfaff. The Ohio Cooperative Corn Performance Tests. Ohio Agr. Expt. Sta. Spec. Cir. 59, 27 pp., map. January 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Ohio Agricultural Experiment Station, and the Agricultural Extension Service of the Ohio State University.)

POLITICAL ACTIVITY OF FEDERAL EMPLOYEES PROHIBITED

THE LAW

It shall be unlawful for any person employed in the executive branch of the Federal Government, or any agency or department thereof, to use his official authority or influence for the purpose of interfering with an election or affecting the result thereof. No officer or employee in the executive branch of the Federal Government, or any agency or department thereof, shall take any active part in political management or in political campaigns. All such persons shall retain the right to vote as they may choose and to express their opinions on all political subjects. (Section 9 (a), Act of August 2, 1939--Public, No. 252, 76th Congress.)

THE CIVIL SERVICE RULES

No person in the executive civil service shall use his official authority or influence for the purpose of interfering with an election or affecting the results thereof. Persons who by the provisions of these rules are in the competitive classified service, while retaining the right to vote as they please and to express PRIVATELY their opinions on all political subjects, shall take no active part in political management or in political campaigns.

The law and the rule quoted above prohibit active participation in politics by all employees of the executive branch of the Federal Government, both those who are in the competitive classified service and those who are not in the competitive classified service. Activity in connection with municipal, county, State, or national elections, primary or regular, or in behalf of any party, candidate, or any measure to be voted upon, is prohibited. The restrictions regarding political activity apply to temporary employees, employees on leave of absence, with or without pay, and substitute employees during their periods of active employment.

AMONG THE FORMS OF POLITICAL ACTIVITY WHICH ARE PROHIBITED ARE--

Serving on or for any political committee, party, or other similar organization.

Serving as officer of a political club, as member or officer of any of its committees, addressing such a club or being active in organizing it.

Serving in connection with preparation for, organizing, or conducting a political meeting or rally, addressing such a meeting, or taking any other active part therein except as a spectator.

Engaging in political discussions or conferences while on duty, or canvassing a district or soliciting political support for any party, faction, candidate, or measure.

Manifesting offensive activity at the polls, at primary or regular elections, soliciting votes, assisting voters to mark ballots, or helping to get out the voters on registration or election days.

Acting as recorder, checker, watcher, or challenger of any party or faction.

Assisting in counting the vote, or engaging in any other activity at the polls except marking and depositing the employee's own ballot.

Serving in any position of election officer.

Publishing or being connected editorially or managerially with any political newspaper or writing for publication or publishing any letter or article, signed or unsigned, in favor of or against any political party, candidate, faction, or measure.

Becoming a candidate for nomination or election to or holding office, Federal, State, or local.

Distributing campaign literature or material.

Circulating, but not signing, political petitions, including initiative and referendum, recall, and nomination petitions.

Assuming political leadership or becoming prominently identified with any political movement, party, or faction, or with the success or failure of any candidate for election to public office.

EXPRESSIONS OF OPINION

The right to express political opinions is reserved to Federal employees. Those employees who are in the classified civil service are required by the civil-service rules to confine themselves to a PRIVATE expression of opinion.

POLITICAL ASSESSMENTS, SOLICITATIONS, AND DISCRIMINATIONS

Sections 118, 119, 120, and 121 of the Criminal Code (35 Stat., 1110), provide that no legislative officer, officer-elect, or candidate for election, and no executive or judicial officer or employee shall solicit or receive or be concerned in soliciting or receiving any money or contribution for political purposes from any other officer or employee of the Government; that no solicitation or receipt of political assessments shall be made by any person in any room or building occupied in the discharge of official duties

by any officer or employee of the United States; that no officer or employee shall be discharged or demoted for refusing to make any contribution for political purposes; and that no officer or employee of the Government shall directly or indirectly give or hand over to any other officer or employee in the serivce of the United States or to any Member or Delegate to Congress any money or other valuable thing for the promotion of any political object whatever.

Form 1982
November 1939

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau

B. P. I. Memo. 1086 February 13, 1940

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

It has been noted that a number of purchases have recently been made on Letters of Authorization, of a number of items such as batteries, spark plugs, dynamite, etc., for which contracts covering field procurements have been made by the Procurement Division of the Treasury Department. In a number of instances, the contractors have provided outlets from which the items under contract may be obtained at many points throughout the United States.

A number of those making procurements of the items in the open market have stated that they were unaware of the fact that contracts covered field procurements.

The avoid suspensions by the General Accounting Office, the attention of all field employees should be promptly called to such contracts at the time the contract schedules are issued.

Very sincerely,

H. E. Allanson
Business Manager of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1087

February 15, 1940

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

It is suggested that you give careful consideration to the annual leave available to employees of your division.

Under present law, an employee can accumulate a total of 60 days' annual leave. This amount can be carried forward on December 31st. With current leave becoming available on January 1st, an employee could have available a total of 86 days of annual leave. Furthermore, under present law, an employee has a legal right to use this leave. While the leave necessarily must be arranged with due regard for the work on which an employee is engaged, nevertheless, if requested, arrangements would have to be made so that the employee could utilize his leave at some time before he would lose it.

An employee cannot arbitrarily determine when he will take the leave to which he is entitled, nor can his administrative superior advise him when he must take the leave. Obviously continuing consideration must be given this problem by administrative officers; otherwise, serious disruption of work may ensue. It is suggested that all administrative officers supervising other workers give this matter careful supervision with a view to the utilization of leave by employees in such a way that the employee may receive a maximum benefit and interruption to Bureau work be at a minimum.

Temporary employees who may be entitled to leave must be granted the leave to which they are entitled before the date on which their appointment terminates. When a reduction in staff is contemplated, advance consideration should be given to the question of leave employees may have available. Curtailment of funds frequently coincides with the fiscal year. Unless the leave situation is carefully considered in advance, complications at the end of the fiscal year may result.

Heads of divisions are urged to give a continued consideration of the leave situation in their division, and a general review at least once a year, preferably early in the calendar year.

Very sincerely,

E. C. Auchter
Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

NEW YORK

CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION, ITHACA (Cereal Breeding, H. H. Love) (Feb. 22)

The weather conditions at Ithaca have been such that it is likely that there may be considerable winter-killing of wheat and barley. While temperatures in January were not extremely low, the mean for the month was below average and there was very little snow cover on the wheat and barley for a part of the month.

The annual Farm and Home Week started out with a very large attendance, but owing to a heavy snowstorm of near blizzard proportions the attendance was cut down in the latter half of the week. Nevertheless, there was much interest in improved varieties of field crops. We had a large exhibit of winter barleys and also stressed our work with smut resistance in oats. In addition, large exhibits were made of other crops such as corn and soybeans.

We are glad to announce that it is possible to enlarge our work in breeding for disease resistance in small grains, owing to a fellowship made available for this purpose by the Cooperative G. L. F. Exchange, Inc. This fellowship is expected to continue for at least three years and we hope that it may be continued longer. Mr. Neal F. Jensen, a graduate of the North Dakota Agricultural College in 1939, who has worked there under the direction of Mr. Glenn S. Smith, has been appointed to this fellowship. He already has material growing in the greenhouse for some experimental work and more will be planted this summer.

At present we are preparing seed for spring seeding, including inoculation for oat smut. We will have about the usual quantity of material in the field, although we have been forced to cut the number of replications in our yield trials. We will also have a large number of selections from hybrids of both oats and barley to be planted in our garden for observation.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice and Oat Production and Improvement, C. R. Adair) (Feb. 18)

January, 1940, was the coldest month since weather records were started at this Station in 1930. The minimum temperature was 3° lower 1 day in January, 1930, but it did not stay cold so long that year as it did this. The mean temperature for January, 1940, was 27.4°, compared with the 11-year average of 41.9°. The minimum temperature was below freezing for 28 days, and below zero 3 of these days, while the maximum temperature was below freezing 17 days.

Temperatures had been low enough to harden the plants for about 20 days before the first extremely cold day--January 19, and injury was not so great as might otherwise have occurred.

In a date-of-seeding experiment with Ferguson No. 922 oats sown October 7 and 25, the plants in the earlier sowing apparently were not seriously injured but those in the later seeding were almost all killed. Most of the oats on the station and in the vicinity were sown in late September or early October and the injury was not serious. Many tender selections in the nursery, however, were killed. Many late-sown farm fields were also seriously injured. Some growers plan to sow spring oats if it is possible to get a seedbed prepared early enough.

TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (Mar. 1)

After one of the coldest winters on record at this Station, there has been some exceptionally warm weather in the past three days, maximum temperatures hovering around 85°. It has only recently been possible to determine the final effect on small grains of the extremely cold weather in January, when temperatures went to 10° as far south as Houston.

Standard commercial varieties of wheat, oats, and barley on farms in southern Texas came through the cold weather with but very little killing, although top growth of oats and barley was frozen back considerably.

Commercial fields of flax were almost completely wiped out as far south as Beeville, but there was very little injury to the crop south of Corpus Christi. A considerable acreage of flax has been reseeded and, in most cases, good stands obtained.

Differential killing of wheat, oats, and barley varieties is very marked in nursery material here at College Station. The same is true of flax varieties at College Station, Temple, Balmorhea, Beeville, and Angleton. Roman Winter, Turkey (C.I. 861), and Turkey (C. I. 862) show the highest survival at most points, although almost complete killing of all varieties occurred at College Station.

In general, the cold weather in January was of great value in helping to eliminate tender strains of wheat, oats, barley, and flax in our breeding material. Very little valuable material was lost as a result of the freeze.

There is now an abundance of soil moisture and all of the small grains are making rapid growth, but top growth is still much less than usual for this time of the year.

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Mar. 5)

The precipitation received in February amounted to 3.17 inches, or 1.21 inches above normal, and reduced the moisture deficiency that has prevailed throughout the fall. Fairly good surface and subsoil moisture now is present although there is need for additional moisture to provide surplus water for stock tanks and creeks. There has been no precipitation causing run-off since last July and all creeks are dry. The temperatures in February were nearly normal with no great extremes. The mean temperature for the month was 47.3°, which is 1.3° below normal. The minimum for the month was 24°. The total wind movement for the month was 7,916 miles, which sets a new all time high record at this Station. Twelve days were clear, 4 partly cloudy, and 13 cloudy.

All spring-sown small grains were sown during the month and are up to a good stand. Germination has been rather slow owing to cold soil and rather cloudy weather. Fall-sown barley and wheat were not damaged by the cold weather in January and the first week of February. Fall-sown oats were injured in some instances. The best differential killing ever recorded at this Station was obtained in the oat winter hardiness nursery and experimental seedings involving hybrid material carrying spring oat genes from white and yellow northern oats.

Spring growth of small grains has started as a result of the warm weather of the past week.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Mar. 2)

Approximately 75 percent stands of winter wheat were obtained in the 1/47-acre varietal plots and much of the wheat has emerged only during the past few warm days, especially that seeded on cropped land. Ample subsoil moisture is available to carry on growth, although the yields obtained from wheat that emerged in January and February are likely to be low. This condition is typical of many farm fields in northwestern Oklahoma and in the Panhandle of Texas. Approximately half of the normal acreage in some counties was not sown because of the dry weather. As a consequence, an unusually large acreage of spring barley and spring oats is being seeded when seed can be obtained. Practically no spring barley and very few spring oats are available in Oklahoma. A number of counties in southwestern Kansas also are reported to be shipping in seed grain.

Wheat in nursery rows emerged to estimated 90 percent stands late last fall and some additional plants emerged under the snow in January. Stands are fairly uniform, although the stage of growth at this date is very much below normal. Heading and maturity are expected to be more or less irregular and harvest probably will be late.

Fall-sown barley and oats emerged to good stands late last fall but did not make appreciable fall growth. An estimated 50 percent of winter-killing is apparent in the barley nursery at this date. The uniform winter-hardiness oat nursery appears much worse hit there, being less than 1 percent of plants visible.

Spring barley, oats, wheat, and flax were seeded on February 15. The seeds have germinated, although the sprouts have not yet emerged.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Feb. 26)

Most of the snow in Kansas disappeared by February 22. This ended a period of 8 weeks during which the ground was wholly or partly snow-covered in the vicinity of Manhattan. No winter in recent years has had nearly that much snow. Temperatures during January were low and the month was the coldest ever recorded. Although the temperature dropped below 10° below zero on only a few occasions, the long periods of near-zero weather resulted in a very low mean temperature.

Fortunately, winter wheat was well covered by a heavy blanket of snow in most parts of Kansas throughout the most severe weather. Although it is yet too early to be certain, the crop does not seem to have been damaged by subzero temperatures. Samples dug in nursery and field plots at Manhattan during the first week of February have shown no injury when transplanted in the greenhouse. Much of the volunteer oats still is alive. However, winter survival depends largely on temperatures from now until April 1, since the snow cover now is gone.

The fate of many thousands of acres of ungerminated winter wheat in the western part of the State remains uncertain. Recent press articles from various points in the area have reported that considerable of that wheat now is germinating. Reports from experiment station officials are less optimistic. It now seems certain, despite experiment station advice against it, that considerable spring wheat will be sown in northwestern Kansas counties where winter wheat was not sown or failed to germinate. Reward probably will be sown if seed can be obtained.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Mar. 1)

The total precipitation from January 1 to February 29 amounts to 1.07 inches. The total precipitation since September 1 amounts to 2.48 inches. Because of this very low precipitation the condition of wheat is very unfavorable in most of western Kansas. Much of the wheat has sprouted since the first of February and the sprouts are lying under a crust left by the snow ready to emerge. The crusted condition of the soil makes it difficult for the sprouts to come through. A light rainfall might relieve this situation considerably. At best, only a light yield of wheat can be expected in this region.

Preparation is under way for sowing the spring barley and oats nursery. This nursery will be on fallowed land. Conditions for seeding, therefore, will be favorable.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Mar. 2)

The weather in this locality continues to make new records. The total precipitation recorded at Mandan for the six months, September 1939 to February 1940, was only 1.50 inches, or 2.43 inches below average and the lowest precipitation recorded for any consecutive 6 months at Mandan since records were first made in 1914 or during the previous 39 years at Bismarck. The January precipitation was 0.03 inch and the February precipitation 0.45 inch.

Below average temperature prevailed during January. The maximum temperature was 44° on January 30 and the minimum -23° on January 3.

February temperatures were a little higher than average. The maximum was 52° on February 10 and the minimum -17° on February 24.

The mean wind velocity was below average in January and February. The mean wind velocity in February of 4.3 miles per hour was a new low record for February. The lowest mean wind velocity previously recorded for February was 4.9 miles per hour in 1938.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Mar. 2)

The winter thus far has been unusually free from wind, snowstorms, and snowdrifts, making a very comfortable winter. A few low temperatures were experienced but calm weather at the time made the weather agreeable.

In February a maximum temperature of 48° was recorded on the 11th and the minimum was -25° on the 24th. The precipitation was 0.49 inch, which is slightly above normal. February was the first month since August when the precipitation was above normal. The maximum depth of snow this winter has been about 3 inches. This has disappeared during the past three days and the temperature is in the 50's today.

Seed is being prepared for seeding and distribution to the various uniform nurseries. The final copies of the annual cereal report are being typed.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Mar. 1)

Mild, cloudy weather has continued through most of January and February. A few light snowstorms have fallen but have melted within a few days, leaving the ground bare most of the time. Moisture conditions are more favorable with a total of nearly 5 inches since January 1, which is nearly 2 inches above normal. Winter wheat appears to be in excellent condition with no sign of winter-killing as yet.

With a few days of clear weather spring seeding could commence, although it is nearly a month earlier than the average seeding time.

Utah watersheds appear to be in fair condition now in spite of a severe water shortage up to January 1.

The mean temperature for February was 33.8°, as compared with an average of 28.4°.

Precipitation for the month totaled 2.07 inches as compared with an average of 1.37 inches.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Mar. 1)

California weather has done an "about face" since the report of December 29. At that time the total precipitation since July was 1.38 inches. The total now is 15.18 inches, which is 3 inches above normal. Of the total, 4.59 inches came during a 4-day storm just concluded, which threatens to equal the storm of December, 1937, in flood damage in the Sacramento Valley. Locally, Putah Creek carried considerably more water than in 1937 and was threatening to inundate all College lands south of the railroad, where the field plots are located, but a break in the south levee diverted the water to the other side. All highways in this section were closed for a while yesterday because of subnergence. High water flooded three streets and several basements in Davis. Damage to experimental material will probably be trivial.

Barley and wheat plants in the experiments at Davis have made good growth, but oat plants are backward. Scald, net blotch, and mildew are now abundant on early sown barley but are not yet of consequence in commercial plantings. None of the rusts has been observed to be overwintering on this farm, but some very severe crown rust on oats in southern California has been reported.

Continuous wet weather, as indicated, has prevented the completion of seeding on about 20 percent of the potential grain acreage in this area. Some of this may yet be sown to barley, but it is getting late for wheat. Certain contemplated seed increase seedings on the Station have not been made and probably will be abandoned. Much work on blocking of small grain plots and nurseries remains to be done but the crop is a little later than usual.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Feb. 13)

The mean temperature for January was 52.6° as compared with the normal of 49.5°. A total of 0.45 inch of rain was recorded. There were only five killing frosts in the month.

A trip was made to the Salt River Valley Experiment Station at Mesa on February 13. The flax seeding made on October 15 was in full bloom, while a seeding made on November 1 was just starting to bloom. The hybrid increase wheat sown October 18 was making rapid growth. A few of the hybrids had fully headed and many others had their top leaf fully extended. Some barley guards sown on the same date had been fully headed for at least a week.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 · April 10, 1940 No. 4

Personnel (Mar. 11 - Apr. 10) and Field Station (Mar. 1 - 31)

PERSONNEL ITEMS

On March 23 the Division gave a luncheon in honor of Miss Laura R. Gartrell, just retired, who, for the past 23 years, was clerk and stenographer in the oat project. Miss Gartrell is the first of the clerical staff of this Division to be retired. The luncheon was attended by 60 of her associates, who presented her with a handsome gold watch as a token of their esteem and friendship. At the speakers' table, with Miss Gartrell, were Dr. M. A. McCall, Dr. C. W. Warburton, Dr. C. R. Ball, Mr. T. R. Stanton, Mr. F. A. Coffman, and Mr. H. S. Smith. Mr. E. E. Carter, with whom Miss Gartrell was associated earlier in the Forest Service, was among those present. Miss Gartrell is now living at Olney, in nearby Maryland, her native State.

Mr. B. S. Kadam, Crop Botanist to the Government of Bombay, India, was in Washington for a few days last week for conferences with project leaders of the Division on breeding and improvement work with small grains. Mr. Kadam will soon complete his doctorate in cytogenetics under Dr. L. F. Randolph and Dr. Paul F. Sharp at Cornell University.

Dr. M. A. McCall spent two weeks beginning March 3 visiting field personnel at Manhattan, Kans., Lincoln, Nebr., St. Paul, Minn., Chicago, Ill., and La Fayette, Ind., for the purpose of inspecting field research and discussing future plans.

Dr. M. A. McCall, Mr. J. H. Kempton, and Dr. A. E. Longley spent March 28 at Camden, N. J., viewing a demonstration of an electron microscope at the plant of the Radio Corporation of America in order to judge of its possible usefulness in research work of the Division. This instrument is a very interesting new development of great apparent promise for certain types of research, particularly in fields of bacteriology and colloidal chemistry. The techniques of utilization, however, have not yet been sufficiently developed to determine how far the instrument may be used in other fields.

Dr. S. C. Salmon attended a conference at Lincoln, Nebr., from February 26 to 29 on the cooperative weed research program. He also spent two days at Manhattan, Kans., and a day at Ames, Iowa, in the interests of cooperative weed research.

The official headquarters of Dr. Roderick Sprague, associate pathologist, formerly at the Oregon State College, Corvallis, Oreg., was changed, effective April 1, to the North Dakota Agricultural Experiment Station, State College Station, Fargo, N. Dak. His new work deals with the investigation of foot rot diseases of cereals and forage grasses and, because this problem cuts across fields of responsibility, is to be conducted jointly by the Division of Cereal Crops and Diseases and the Division of Forage Crops and Diseases in cooperation with the Soil Conservation Service and the agricultural experiment stations of North Dakota, South Dakota, Minnesota, and Montana.

RECENT PUBLICATIONS

Charlotte Elliott and Alice L. Robert. Sectoring in Colonies of Aplanobacter stewarti. (Phytopath. Note) Phytopathology 30(3): 276-278, fig. 1. March 1940.

Irwin R. Hoener and Ralph O. Snelling. Effect of Pollination upon Chemical Composition of Silks of Certain Inbred Lines of Maize. Jour. Amer. Soc. Agron. 32(3): 213-215. March 1940. (Contribution from the Department of Agronomy, Illinois Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

R. W. Leukel. Selenized Soil as a Control for Aphids and Red Spiders on Sorghum in the Greenhouse. (Phytopath. Note) Phytopathology 30(3): 274-276, fig. 1. March 1940.

L. F. Randolph and David B. Hand. Relation between Carotenoid Content and Number of Genes per Cell in Diploid and Tetraploid Corn. Jour. Agr. Res. 60(1): 51-64, pls. 1-2, figs. 1-4. January 1, 1940. (G-1150) (Cooperative investigation of the Division of Cereal Crops and Diseases and the Departments of Botany and Dairy Industry, New York State College of Agriculture, aided by a grant from the committee on radiations of the National Research Council.)

H. A. Rodenhiser. The Origin of Physiologic Races of the Smut Fungi by Hybridization. Amer. Assoc. Adv. Sci. Pub. No. 12, pp. 73-76. 1940.

TREASURY DEPARTMENT
Procurement Division

February 13, 1940

Circular Letter No. 409

TO THE HEADS OF ALL DEPARTMENTS AND ESTABLISHMENTS:

SUBJECT: Consolidated contracts for SERVICE STATION delivery of gasoline and lubricating oil for fiscal year 1941

1. The subject contracts covering State-wide deliveries of gasoline and lubricating oil will be made by the Procurement Division.

2. During the fiscal year ending June 30, 1940, various Federal offices issued invitations for bids and executed contracts covering State-wide deliveries and providing for participation by Federal activities other than those specifically named in the contracts. For some States different offices executed contracts with the same company. Procurement Division's issuance of invitations for bids and effectuating State-wide contracts will eliminate the heretofore duplication of action and the possibly resulting confusion such as exist when two different Government contracts are had with the same company.

3. Of the provisions which will be in Procurement Division contracts, two may be of interest at this time. They will read substantially as below, and are self-explanatory.

(a) Federal activities having service station delivery requirements more or less locally concentrated in certain towns, cities, or in one or several counties (of area not approaching State-wide) may consider it desirable and advantageous to execute contracts therefor independent of this Procurement Division contract; and it is to be understood that Federal activities may enter into such separate local contracts. Should Federal activities, which may make such local contracts, request deliveries by the contractor under this Procurement Division contract, the contractor shall furnish the requested deliveries.

(b) The Government reserves the right to purchase in the open market or enter into contract at such points and/or localities within the State where the contractor lacks facilities to make service station deliveries of gasoline and lubricating oil. The further right is reserved to the Government to make emergency purchases of service station deliveries of gasoline and lubricating oil without regard to whether the contractor may have facilities in the locality where such emergency purchases must be made.

H. C. MAULL, JR.

Acting Director of Procurement

April 1, 1940

SPECIAL MEMORANDUM FOR THE FIELD STAFF

Attention has previously been called to the reason for sending out requests each fall to field men to send in at that time lists of supplies required for the year. Usually, supply items have been practically all cared for by this time. We have just recently received several large supply lists. This practice, if followed by very many, seriously interferes with plans for special equipment purchases toward the end of the year. Please, each of you, hereafter keep careful note of your year's requirements and send in your list each fall when requested. While we realize that there are special circumstances justifying additional requests in some cases, please avoid these insofar as possible.

M. A. McCall
Principal Agronomist in Charge,
and
Assistant Chief of Bureau.

April 10, 1940

SPECIAL MEMORANDUM FOR THE FIELD STAFF

The Bureau has received a complaint from the Third Assistant Postmaster General concerning the proposed use of Form Dept. 52, penalty labels for sending to Washington, D. C., printed matter in excess of four pounds in weight. Postmasters are instructed to refuse such shipments, this action being based on Section 618 of the Postal Laws and Regulations. The provisions of this section permit Government officials in furtherance of their official duties to send through the mails under penalty privilege (1) publications issued by the Federal Government in packages up to 70 pounds, and (2) other printed matter required in connection with their official duties in packages not to exceed 4 pounds. Although official matter entitled to be mailed free of postage under penalty privilege may be registered, under Section 1211, Postal Laws and Regulations, and the note following the registration fee of 15 cents must be paid on such matter mailed from any point other than Washington, D. C., unless mailed by officers of the Government headquartered at Washington but temporarily absent from their headquarters. In these latter cases the matter should be endorsed over their signatures with the words, "Temporarily absent from Washington, D. C."

The Post Office Department has requested that we amend instructions to field personnel on the use of the penalty privilege so that facts are set forth clearly as follows:

(1) All printed matter sent under penalty privilege in connection with official work, except publications issued by this Department, must be in packages weighing less than 4 pounds, unless a single book weighs more than 4 pounds when the postmaster's attention should be called to this fact so that special arrangements can be made for shipping under penalty privilege.

(2) When it is necessary to register material sent under the penalty privilege, the registration fee must be paid at the place of mailing.

M. A. McCall
Principal Agronomist in Charge,
and
Assistant Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Mar. 13)

The maximum temperature for February was 70°, the minimum 31°, and the average mean 51°. Ice formed on 1 day. In February 1939, the maximum temperature was 79°, the minimum 28°, and the average mean 55°. Ice formed on 2 days.

The total precipitation of 7 inches is 2.99 inches more than the 30-year average for February. Only twice in the 30 years prior to 1940, in 1915 and 1927, has the precipitation in February equaled or surpassed that of 1940.

The cold weather in January and probably a lack of food, caused by the ice-covered ground, resulted in the death of the majority of the killdeers (plover) that are usually abundant in this section throughout the year. Only three or four of these birds were noted by the writer after the ice disappeared.

According to the "Estimate of the Rice Crop for the Year 1939," compiled by the Rice Millers' Association, the commercial acreages for the States of Louisiana, Texas, and Arkansas, of three rice varieties released by the Rice Experiment Station were:

Variety	Total for the three States			Percentage of crop in three States	Percentage of crop in United States
	Acres	Barrels	Bushels		
Fortuna	23,860	301,328	1,084,781	2.46	2.08
Nira	37,620	549,051	1,976,584	4.49	3.80
Rexoro	136,149	1,931,617	6,953,821	15.80	13.37
Total	197,629	2,781,996	10,015,185	22.75	19.25

The estimated value of the 1939 rice crop in Louisiana is $16,066,000. The three varieties released by this Station comprised 17.91 percent of the Louisiana crop, or an estimated value of $2,877,420.60.

(Apr. 5)

The maximum temperature for March was 79°, the minimum 37°, and the average mean 61°. In March 1939, the maximum temperature was 84°, the minimum 40°, and the average mean 63°.

The total precipitation of 5.38 inches if 1.63 inches more than the 30-year average for March.

Owing to the heavy precipitation in February and March very few commercial fields of rice have been sown.

Work on the Station has progressed satisfactorily and, in some respects, more has been accomplished than usual at this season of the year. Heavy rains on March 13 and 30 have, however, delayed soil preparation and probably will cause the seeding of some crops to be later than last season.

TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (Mar. 26)

The writer recently made an inspection trip to the South Texas substations at Angleton, Beeville, and Weslaco where disease and winter survival notes were taken in the small grain and flax nurseries.

At Angleton, on March 11, the only disease found in the small-grain nursery was leaf rust of wheat, which was observed in a few infection centers. In the flax nursery at that station, very marked differential winter-killing had occurred among the 44 varieties under trial. Turkey (C. I. 862) showed no winter-killing whatever, whereas tender varieties such as Punjab and Giza showed no surviving plants.

At Beeville, as a result of extreme drought, very little top growth had been made by any of the small grains and no diseases were found. Stands in the flax nursery were extremely thin, and little difference in survival could be observed.

At Weslaco, in the lower Rio Grande Valley, on March 14, the leaf rusts of wheat, oats, and barley had all reached epidemic proportions, and marked varietal differences in reaction to these diseases were very noticeable. The dwarf rust of barley (Puccinia anomala) was particularly severe on susceptible varieties such as Marnocaro and Trebi, which were beginning to lose their leaves because of heavy infection by the disease. Other varieties such as Abacus and Juliaca were entirely free from the disease. In a special wheat rust nursery consisting of 132 varieties and strains, leaf rust was especially severe on Kota and most of the Kenya wheats, while varieties such as Frontaira, Supreza, and Vencedor showed only a slight flecking of the leaves. Sinc most of the wheat varieties grown in this nursery have some form of resistance to stem rust, very little infection by that disease could be found. It is noteworthy, however, that Kota, which was at one time considered resistant to stem rust, carried by far the heaviest infection of any of the 132 varieties in the nursery, whereas Marquis and Mindum were entirely rust free. Crown rust of oats was becoming so severe that it is probable that completely susceptible varieties will produce no grain. Stem rust of oats was not found in any of the varieties.

In a special winter forage crop nursery on the Weslaco station, a variety of giant beardless barley developed from a cross made by the writer in South Dakota over 25 years ago, was creating somewhat of a sensation. This variety was in full head and approximately 4 feet in height with heads 5 or 6 inches long and leaves 1 to 1-1/2 inches wide and practically free from rust. Leaf meal made from it showed a protein content of 31 percent.

The irrigated flax nursery on the Weslaco station this year is one of the best nurseries of its kind that the writer has ever seen. It was uninjured by the cold weather in January, which destroyed most of the commercial flax farther north in the State. Very little evidence of disease of any kind was observed in any of the hundred or more varieties in the nursery.

Upon returning to College Station, a thorough inspection of the cereal nursery here failed to reveal the presence of any of the cereal rusts. In normal years, leaf rust of wheat is uniformly distributed in susceptible material by this time of the year.

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Apr. 1)

Weather conditions continue very abnormal. After a very cold February with above-normal precipitation, the March weather has been unusually warm with little rainfall. The mean temperature for the month was 60.5°, which is 4.5° above normal. A new record maximum temperature for March was set on the 31st when the maximum reached 95°. The temperature fell below 32° only twice in the month. Only 0.51 inch of precipitation was recorded, which is 1.75 inches below normal. The humidity for the month was 55.6 percent, or 10.2 percent below normal. Wind run for the month was 7,658 miles which is much above normal, and on the 7th an all-time wind record of 715 miles in 24 hours was set.

Spring oats sown in February emerged about the first of the month and have made good progress. Flax planted on March 9 and 18 has emerged to good stands. All small grain is making rapid growth owing to the warm weather but at this date is beginning to feel the deficiency of moisture that has prevailed since last July. Coker rye in the nursery is starting to head. So far no rust has been found.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Mar. 16)

The cereals are making slow spring growth owing to moderately low air temperatures. Most wheat on the Station is in the third to fifth leaf stage, whereas in most years it would be covering the ground by this date.

Farm fields with few exceptions are in the same condition and in many instances have only a third of normal stands. East of Woodward in the Enid area wheat is slightly further along but is reported to be badly infested with root-rot organisms. Wheat in southwestern Oklahoma is also reported to be in poor condition, with thin stands and little growth.

Rain would be of benefit in most of western Oklahoma even though the total since January 1 is above normal. Most of the precipitation came in the form of snow, all of which did not soak into the soil. Owing to the dry fall in 1939 most farm fields still have a dry subsoil. Our last rain of more than 0.11 inch occurred on February 15 and totaled 0.98 inch. The total rainfall thus far for 1940 is 2.59 inches as compared with the 25-year station average of 2.22 inches. Freezing temperatures were recorded on 6 days during the first half of March and 37° was the highest minimum temperature.

Spring barley, oats, and flax seeded on February 15 emerged to good stands on March 4 to 7 and at present show up to better advantage than the winter wheat.

Winter oats were severely injured by the weather of the past winter. Thirteen varieties were completely killed and only two showed more than 10 percent of spring survival. The average spring survival for the 30 varieties grown was 2.9 percent.

Fall-sown barley fared slightly better, although 40 percent was the highest survival noted. No variety was completely killed although 11 showed but 1 or 2 percent survival. The average survival for the varieties grown was 9.9 percent.

(Apr. 2)

A high wind on March 26, reported to be the worst in two years, damaged a large number of grain fields in northwestern Oklahoma. In some areas entire fields were blown out and many more were partly ruined. A thick hard crust formed by January snows and containing many shallow cracks has seemed to prevent blow damage to the cereal plots and nursery thus far. Normally a crusted soil enhances soil blowing.

Wheat made little or no growth in March and is covering the ground in very few fields. Only since April 1 have signs of first vigorous growth been evident, whereas in most years wheat is approaching or has passed the first jointing stage at this date.

Even though soil moisture on the cereal plots extends down about 5 feet on cropped land and 6 to 7 feet on fallow land a good rain probably would do much to encourage cereal growth. Subsoil moisture in most farm fields is lacking or where present seldom is deeper than 18 inches. The condition of wheat in northwestern Oklahoma at present is about 20 to 25 percent of normal, hence the prospects of a good crop are slim.

Spring barley and oats are making vigorous growth but would be benefited by rain.

Rainfall at Woodward during March totaled 0.18 inch, 1.34 inches below the 25-year station average. Precipitation to date for 1940 totals 2.69 inches, which is but 0.29 inch below normal. Most of this was in the form of snow which evaporated, so moisture supplies are farther below normal than the figures indicate.

The maximum temperature for March was 95° on the 31st. The minimum was 20° on the 12th. The mean March and 25-year average mean March temperatures were 49° and 47°, respectively.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Mar. 8)

The winter wheat in both plot and nursery tests has been examined after being covered with snow since before Christmas. It seems that in spite of the extremely cold January there has been little or no killing in the adapted varieties. Winter barley is still alive and there is some doubt as to whether all of the spring wheat in the classification nursery is dead. At present wheat looks much better than it did in December before the snow arrived. The total precipitation for the three months, December, January, and February, amounted to 2.86 inches at the Agronomy Farm, and this moisture plus the protection afforded by the snow has been very helpful. Since the first of March about a half inch more moisture has been received.

In some spots in the plots the soil was so dry that emergence did not occur last fall. The plants in these spots have now emerged and are about an inch tall. It will be interesting to see if these plants will form heads and grain. From the central part of the State reports are being received indicating that emergence is starting in many of the fields where the wheat failed to germinate last fall. Except on fallow, abundant rainfall will be needed to mature the crop. Reports from North Platte indicate that the crop on fallow is in fair shape, but on corn ground stands are very poor and plants rather weak.

Growth of plants in the greenhouse has been slowed up owing to lack of sunshine, and some difficulty is being encountered in making crosses.

Dr. M. A. McCall visited Lincoln on March 7 and 8.

(Apr. 1)

During most of March the weather was cold and cloudy; precipitation was recorded on 17 days. The total precipitation was 1.21 inches, which is about normal for the month. Most of this came in the form of snow.

Winter survival notes indicate that killing has been very light. Winter barley survived well, and some fall-seeded spring wheats still have a 50 percent stand. Some volunteer oats is still alive in the winter wheat plots. Winter wheat made very little growth until the last few days of the month, when a few warm days caused all vegetation to grow rapidly. Permanent roots on the winter wheat plants are still very small or lacking.

Spring grains were seeded on March 26 to 30. In most cases the seed was placed in moist soil and, while the surface is very dry now, germination should take place without rain.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C.Brinsmade, Jr.) (Apr. 2)

General cloudy weather with frequent light snowfall, moderate temperature, and low wind velocity prevailed throughout March. The total precipitation was 0.93 inch. Most of the snow has melted but so gradually that there has been little runoff. The average wind velocity of 5.5 miles was a new low record for March.

There has been some rise in the level of the Missouri and Heart Rivers. The ice in both streams is floating free from the banks but has not yet started to break up or move out. Usually the breakup of ice occurs before March 20 in the Heart River and about a week later in the Missouri.

There is still too much frost in the ground to permit satisfactory preparation of land for seeding.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Apr. 1)

During the first half of March, mild weather and bare ground prevailed most of the time. For the next two weeks light snowfalls occurred almost daily and colder weather was the rule. Warm, sunny weather during the period from March 28 to 30 caused the snow to disappear. The month ended with a light mist and rain that added 0.07 inch this morning to the total of 0.71 inch of precipitation recorded in March. While the precipitation for March was only about normal the absence of severe winds and excessive evaporation, and the fact that most of the moisture soaked into the ground, left the surface soil in better than average moist condition. The subsoil still remains dry in most places and liberal rains will be needed to insure an average crop.

The fields will soon be in condition for field work unless colder weather prevents. Almost no field work has been done in this vicinity as yet.

Seed for the spring wheat nursery is being prepared.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Apr. 3)

The precipitation for the months of January, February, and March totaled 7.02 inches, as compared to a mean for this period of 4.52 inches. Despite this favorable rainfall in the Valley, a snow survey conducted by the engineering department shows that the Utah watersheds are seriously deficient. This water shortage is accounted for by the fact that the autumn months were warm and dry and that the spring has been the second warmest for 20 years. At present, almost no snow can be found below 7,000 feet elevation.

Winter wheat made a good fall growth and has come through the winter with almost perfect stands.

Exceptional growth has already taken place this spring with the promise of one of the best crops in years.

During the period from March 16 to 26 maximum temperatures ranged from 60° to 75°. Most of the small grains were seeded during this period except for the 1/60-acre plots. Since the 26th two heavy rains have fallen bringing much needed moisture to the spring-sown crops.

Most of the spring flowers are in bloom and the trees are leafing. This condition may prove serious, for the usual time for leafing in this part of the State is some 3 weeks later.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (Apr. 1)

The 1940 rainfall to date at the Biggs Rice Field Station is 21.43 inches. The 27-year average rainfall for the first three months of the year is 9.66 inches. Some sections of the Sacramento Valley are having serious floods at the time of this writing.

Rice planting will be late even with ideal weather conditions during the remainder of the spring. Plowing will not begin before April 20, and rice seeding will mostly be in the last half of May. Work at the Station for the last month has consisted mostly of preparing nursery and plot seed for planting, numbering seed packages, overhauling machinery and tractors, and cleaning drain ditches.

The present rice market in California is very discouraging. Indications point to a record size carry-over of rice. The present paddy rice price for 50-pound-yield rice is about $1.30 per hundred weight. Regardless of the poor outlook, inquiries for rice seed have been numerous. The stocks of seed from the Station were sold early in the winter.

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Apr. 1)

California has just had another big storm, threatening further flood damage, particularly in areas flooded late in February. Levees washed out or damaged in that storm had, in only a few cases, been repaired sufficiently to withstand the current flow of water. Locally, there was no flood threat this time, although the precipitation in the 5 days ending yesterday was 3.54 inches. This gives a seasonal total of 19.02 compared with a normal of 14.60 inches.

Cereals in this Valley have never presented such contrasts. On sandy-loam soils, such as those on this station, growth is normal, but on heavier soils with good drainage there is visible nitrogen deficiency and rather poor growth. On flooded lands (and they are extensive when one considers those submerged from 1 to 7 days in late February, as well as several townships under water for an even longer period) about half the acreage has been plowed out and reseeded to barley, which promises some very late grain this year.

Cereal diseases are developing rapidly. In the Imperial Valley, according to reports, stem rust has already destroyed Ramona fields (very early maturing and very rust susceptible) and threatens all the other wheats (12,000 acres of wheat in the Valley) except the new Baart 38 and White Federation 38, which are rust free. Stem rust of oats has been found overwintering in this Valley. Barley scald is now as severe as ever seen by the writer and, from reports, is widespread in the State. Net blotch is also abundant. Mildew is much less prevalent than last year.

Ramona (in the heading stage) has been badly damaged by frost in Riverside County so this variety is being attacked on all vulnerable fronts this year.

The crop at Davis is about 1 week later than average. Only Ramona wheat and a half dozen barley varieties have headed.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Apr. 3)

The mean temperature for March was 59.9, or about 2.5° above normal. There was only one killing frost in the month (March 13) when the temperature was 30°. The rainfall was only 0.04 inch.

A number of wheat and barley varieties had headed at Mesa when observed last week. None of the oat varieties had headed. The hybrid increase nursery was progressing nicely. There were some rows among the more than 500 that had not completely headed. Present indications are that the material will be harvested very early in May.

The heading in the nursery at Tucson is limited to some barley varieties but a few of the earliest wheat varieties should head soon.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 April 25, 1940 No. 5

Personnel (Apr. 11 - 25) and Field Station (Apr. 1 - 15)

PERSONNEL ITEMS

Mr. H. H. McKinney returned April 23 from an inspection trip in the wheat mosaic region and to take notes notes on cooperative experimental plots in Illinois and Indiana.

Dr. S. C. Salmon and Dr. B. B. Bayles were in Wooster, Ohio, April 19 and 20 to inspect the cooperative work of the Federal Soft Wheat Laboratory with those in charge and to plan for future work.

RECENT PUBLICATIONS

H. V. Harlan, M. L. Martini, and Harland Stevens. A Study of Methods in Barley Breeding. U. S. Dept. Agr. Tech. Bul. 720, 26 pp., 5 figs. February 1940.

W. Z. Hassid, R. M. McCready, and R. S. Rosenfels. Determination of Starch in Plants. Indus. and Engin. Chem., Analyt. Ed. 12: 142. March 14, 1940. (Collaboration of Dr. Rosenfels was made possible by the cooperative project on control of noxious weeds conducted by the California Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

R. S. Rosenfels. Spread of White-Top Seed in the Droppings of Grazing Cattle. Nev. Agr. Expt. Sta., Bul. 152, 5 pp., 3 figs. March 1940. (Published in connection with a project on the control of white-top and other noxious weeds conducted by the Nevada Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

C. I. Seely. The Control and Eradication of Wild Morning Glory. In Proc. 26th Ann. Meeting Wash. Irrig. Inst., pp. 19-20. 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the agricultural experiment stations of Idaho and Washington.)

POLICIES ON THE RELEASE OF INFORMATION

The work of the new Division of Information in the Bureau was discussed in a meeting held recently by the scientific staff of our Division with Mr. Cardon and Mr. E. G. Moore, chief of the new Division of Information.

Mr. Cardon explained that the Bureau would pay more attention in the future to reporting the results of its work. In many instances this will merely mean a more friendly cooperation with editors and writers who come to us for information. Sometimes it might mean getting together a collection of photographs, or even making new photographs when no suitable ones are available.

Insofar as possible, information will clear through the new division, but this will not always be practical in the field. Requests for information from local newspaper editors can usually be answered with a simple statement of the object of the work and the methods employed. Although there are many instances where it is advisable to give out for local publication a progress report, as a general rule we should clear requests of this kind in the Washington office. This is particularly true of projects that have a broad regional or national interest.

One of the services available through the Division of Information is assistance in getting photographs better suited for publication purposes. Most of our photographs are made for record purposes and do not have the "action" desired by editors.

Through an arrangement with the Department Press Service the Bureau is using the services of Peter Killian, Press Service photographer, to get "action pictures" of our work. There is no charge for his time. The Bureau pays for materials used, and when he is away from Washington we pay his per diem allowance. On one of his trips for the AAA he stopped over at Lincoln and at Urbana to do work for the Bureau at no cost for travel. Of course we will not always be fortunate enough to have some other agency finance his trips but some of the Divisions of this Bureau have shown an interest in working up a trip for him this summer and sharing the expense.

His pictures are not released until they have been approved in the Bureau, so field employees need not feel the entire responsibility for views taken. Another point to keep in mind is that we can use Mr. Killian to get photographs that we would like for Bureau publications. Just recently he has made several photographs especially for cover pages of popular publications. Good pictures are always in demand, and we will find many uses for them.

April 23, 1940.

SPECIAL MEMORANDUM

It has been ruled that under the provisions of existing law, Government employees may, with the permission of the Secretary, serve on district school boards where membership on said board is by appointment. Government employees now serving an elective term may finish out this term but may not in the future stand for election to such an office.

M. A. McCall
Principal Agronomist in Charge,
and
Assistant Chief of Bureau.

April 15, 1940.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Apr. 15)

General precipitation over the State on April 6 and 7 brought more than 3 inches of rain at the Station. This is the heaviest rainfall recorded at Denton since last May. Very little run-off occurred. The total precipitation for the first half of the month was 3.44 inches. Weather conditions in general have been very favorable for the growth of small grains. There was a killing frost, with a minimum of 29°, on the 13th.

Following the rains, grain has made very rapid progress. Frazier and a few other early oat varieties are starting to head. Barley will be heading in a few days. No wheat has headed at the Station but a field of Early Blackhull wheat on an adjoining farm has started heading. The reaction of these varieties makes it appear that heading will be early this year. Leaf rust of wheat has not appeared even at this late date.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Apr. 20)

Growth of winter wheat has been rather satisfactory during the first half of April. For the most part the weather has been cool, with a few warm days. Approximately an inch of moisture has been received so far this month.

Spring small grains emerged the first week of the month to uniform stands. On April 10 and 11 the temperature dropped to 19° and 20° and oats, especially the early varieties, were injured. Some of the barley strains seemed to be injured more severely than others. At present the only visible effect of the freeze is that the tips of the leaves are dead and some of the strains are retarded in growth.

A trip was made to western Nebraska during the first 10 days of the month. In the central part of the State, south of the Platte River, wheat was very poor with thin stands, short growth, and very little soil moisture. Many of the fields were being re-seeded to oats and barley. In the southwest corner of Nebraska there is some very good winter wheat, especially in Chase and Dundy counties. In the panhandle counties where winter wheat is raised the crop looked well, especially on fallow. Taking the State as a whole about a half crop is now predicted.

At North Platte, the varietal plots of winter wheat on fallow looked well, but the stands on corn ground were very poor. The nursery, growing under irrigation, was making a good growth and there had been no winter-killing in any of the material.

The winter wheat plots at Alliance came through the winter with good stands and were showing green color. The soil was moist for only about 10 inches when inspected, although additional moisture has been received since then. The nursery sown on fallow had uniform stands with almost no killing. With normal rainfall a crop should be obtained from this nursery.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Apr. 16)

Snow and freezing temperatures have caused great delay in the preparation of land. Heavy wet snow, most of which occurred April 2 and 3, amounted to 0.71 inch of precipitation. Most of the snow on open ground had melted by April 8 but there are still patches of snow in sheltered places. Melting of snow was gradual with much less run-off than usual. The maximum temperature was 73° on the 14th and the minimum 9° on the 4th. Freezing temperatures were recorded every night up to April 12.

The Heart and Missouri Rivers have flowed at unusually low levels this spring with no indication of flood conditions at any time. In the Heart River the ice has been moving out quietly and intermittently since April 3 without causing the water to rise more than about 2-1/2 feet above the winter level. In the Missouri River the ice remained solid until April 9 but since then has been moving out quietly. The level of the stream has not risen at any time this spring within 11 feet of flood stage.

Preparation of land for seeding was started on the afternoon of April 8 although frozen ground in places prevented satisfactory work. Land for wheat, oat, and barley plots was duckfooted April 9. A hard freeze the night of April 10 with a temperature of 11° froze the ground hard again and further delayed the marking and staking of the nursery land. Marking of the land is completed and seeding will commence as soon as the weather permits.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Apr. 17)

The beginning of field work has been retarded by frozen ground and frequent light precipitation. During the latter part of last week the temperature rose into the 70's and the last of the snow disappeared.

Seeding at the Substation began late in the afternoon of April 15 with the uniform regional nursery. The intrastate and elimination nurseries were seeded on the 16th. Approximately 1,900 rod rows have now been seeded.

The rotation plots are being seeded and the field plots of spring wheat should be seeded the latter part of this week.

The precipitation this month is somewhat below normal so far but there has been but little evaporation during the cold, damp weather and no severe winds have occurred this spring.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 May 10, 1940 No. 6

Personnel (Apr. 26 - May 10) and Field Station (Apr. 16 - 30)

PERSONNEL ITEMS

Dr. B. B. Bayles left Washington May 10 on a trip through Virginia, North Carolina, South Carolina, Georgia, Tennessee, and Texas to study experiments with wheat, to note crop conditions in general, and to confer with officials of State agricultural experiment stations on cooperative research.

After his return to Washington on May 31, Dr. Bayles will leave about June 3 to travel in West Virginia, Kentucky, Ohio, Indiana, Illinois, Missouri, Kansas, Nebraska, Michigan, and Wisconsin in order to visit field stations and confer with officials of State agricultural experiment stations on cooperative wheat experiments. Dr. Bayles will study varieties and hybrids in breeding nurseries and observe wheat conditions in general.

Mr. Sidney R. Snider has been authorized to attend the meetings of the American Society of Brewing Chemists to be held in New York City May 24 and 25 and confer with research workers. He will present a paper on the determination of total beta-amylase in barley and barley malt.

Mr. T. R. Stanton left Washington on May 8 for a trip through the oat-producing States of the South. He will make stops in Tennessee, Arkansas, Oklahoma, Texas, Louisiana, Mississippi, Alabama, Georgia, Florida, North Carolina, and South Carolina to inspect and study cooperative experiments with oats and confer with officials on new oat varieties and future cooperative experiments.

Dr. G. A. Wiebe left Washington on May 4 to visit State agricultural experiment stations in Tennessee, Arkansas, Texas, Oklahoma, Kansas, Missouri, and Kentucky. He will study cooperative barley experiments and confer with offical on barley research.

RECENT PUBLICATIONS

H. V. Harlan and G. A. Wiebe. Growing Barley for Malt and Feed. U. S. Dept. Agr., Farmers' Bul. 1732, 18 pp., 4 figs. January 1940. (Revised)

S. C. Salmon. The Use of Modern Statistical Methods in Field Experiments. Amer. Soc. Agron. Jour. 32(4): 308-320. April 1940.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)

(Apr. 25)

The item of most interest at this time is that stem rust of wheat has been found on rather a broad front, extending from Cleburne, Texas, 27 miles southwest of Fort Worth, to McKinney, Texas, 30 miles northeast of Dallas. The infection is very light; in most instances only single pustules can be found as though a general spore shower had occurred. In two fields, one near Cleburne and another near Plano, Texas, centers of infection were found in which several generations had developed. A very small amount of leaf rust of wheat was found in this area. Over most of this area wheat is short and thin and not favorable for rust development. East and north of Dallas, wheat is rank and provides favorable conditions for the development of rust. No rust was found on oats or barley. Loose smut of wheat is again rather prevalent, some fields having rather high infection. In general, the infection is not so high as last year. Smut of oats is more prevalent than for some time. Very high infection was noted in a few fields.

Weather conditions at Denton have been unfavorable for rust infection. Dry, clear weather with few dews have been the rule. Grain is making rapid progress and early strains of all crops are heading.

(May 1)

Weather conditions during April were generally favorable for small grains. A slow rain of 2.85 inches broke the drought on April 6 and was followed on April 28 by another slow rain of 2.42 inches. The total precipitation for the month was 6.04 inches, which is 2.35 inches above normal. This assures about a normal crop of small grains insofar as moisture is concerned. Fall oats have recovered least of all the grains; the first rain occurred just as they were about to head so that it was too late for greatly increased growth.

Temperatures during the month were about normal with a mean temperature of 63.7°. The maximum temperature for the month was 93°. The lowest temperature, 29° on the 12th, did considerable damage to corn but did not injure small grains.

As previously mentioned stem rust was found near Dallas on April 19, which is much earlier than normal. Only a very light infection is present and conditions have not been very favorable for spread. Leaf rust of wheat is spreading very slowly.

At this writing, heading is general in all three small grain crops. Early varieties of wheat, oats, and barley are fully headed and ripening of the crop probably will be about normal. The period of heading is extending over a longer period than normal, early varieties having headed as early as April 15 and late varieties will not start heading for several days yets.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 1)

A 0.47-inch rain on April 27 left the total precipitation for April only 0.12 inch below the 25-year station average. The total for 1940 is 4.96 inches, or 0.41 inch below normal. However, average temperatures were about normal (57°), and since growth is late the deficiency is not so severe as in years of above-normal rainfall when growth starts early and is rank at this date.

Active spring growth of cereals started about April 1, nearly a month later than in most years. Early varietal differences in habit of growth are becoming more and more evident. Early Blackhull was jointing on April 12 and midseason varieties such as Tenmarq, Blackhull, and Chiefkan started April 28. Few if any farm fields in northwestern Oklahoma are jointing yet and a few are still late enough to be subject to damage from blowing.

Three early varieties of rye are first headed.

Spring barley and spring oats are making vigorous growth and both are appreciably ahead of fall-sown barley which is "taking off" rather slowly.

Flax varieties survived a minimum temperature of 22° on April 11 without noticeable damage and are now approximately eight inches tall. There is no sign of flower buds.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Apr. 29)

The Kansas winter wheat crop continues to be a disappointment despite some improvement in April. The April 1 estimate of 59,400,000 bushels indicates the shortest crop since 1917. At Manhattan and in the Kaw Valley the crop is nearly normal and prospects for a wheat crop are good. Condition of the wheat crop east of a line running north and south through Salina ranges from fair to good. West of that line, prospects are very poor. Most of the wheat now present in the area did not emerge until March and therefore is extremely late.

There undoubtedly will be an enormous acreage of row crops planted in western Kansas this year to compensate for the failure of winter wheat. Much of it will be occupied by sorghums.

The spring at Manhattan has been cold and late. As a consequence, crops are about 10 days behind normal in development. A severe freeze on April 11 and 12 froze spring wheat, oats, and barley back to ground level and damaged non-hardy winter wheats in the rust nursery where there was much more top growth than elsewhere. Excellent notes on low temperature damage were obtained on both spring and winter wheat. Several periods of low temperature in April have failed to eliminate volunteer oats that still infest nursery and field plots of winter wheat.

Recent good rains at Manhattan have brought the April rainfall up to near normal. The ground is wet and cereal crops now are developing rapidly.

Leaf rust of wheat overwintered in small amounts as far north as Manhattan but spring temperatures have been so low that there has been no increase in rust. There is good evidence that leaf rust overwintered in Kansas, where the ground was continuously covered with snow from Christmas to February 20; there has been little if any overwintering in Oklahoma and northern Texas, where snow did not stay on the ground so long. Recent reports from E. S. McFadden and I. M. Atkins indicate that both leaf and stem rust of wheat have advanced as far north as Dallas, Texas. No rust of any kind has so far been reported to the writer from any point in Oklahoma and southern Kansas. However, there undoubtedly are traces of leaf rust of wheat by this late date.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (May 1)

The prospects for winter wheat are not encouraging in the western half of the State, where much of the crop did not emerge until March 18 or even later. Growth has been slow and the moisture none too plentiful. The wheat that emerged on March 18 should be vernalized and is somewhat ahead in development of varieties of spring wheat sown on March 10. Many fields of fall-sown winter wheat that emerged in the spring show a thin stand. Weed competition is also becoming a factor.

Oats, barley, and flax have emerged to good stands and on fallow land are doing well. There is as yet not enough available moisture on cropped land to carry these crops through unless normal or more than normal rainfall prevails.

More than 750 vocational high school boys and girls and 4-H Club members participated in the various judging contests at Hays on April 26. It was the largest delegation of contestants ever assembled at the Hays station for this annual event. The Twenty-Seventh Annual Cattlemens' Round-Up followed on April 27 and a large crowd was present.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 2)

Unseasonably cold weather and snow and rain during the last half of April caused further delay in seeding operations. The maximum temperature was 71° on the 18th and the minimum 25° on the 16th. The total precipitation during this period amounted to 3.53 inches. More than 3 inches of this occurred during the three days, April 27, 28, and 29. This precipitation started as a slow, gentle rain on the 27th and ended the 29th by leaving a covering of wet snow over the ground. Most of the snow had melted by mid-afternoon of the 30th but on the following morning some still remained unmelted in sheltered spots. The rain caused severe soil erosion on some sloping ground. Small gullies formed on part of the wheat nursery land but fortunately most of the damage was on land not yet seeded. The first wheat sown on April 17 is just beginning to emerge, so it will be some days before it can be determined whether there was appreciable damage from seed being washed out of place. The surface is packed so hard that the wheat seedlings may have difficulty in penetrating the surface.

Most of the seeding has been done at only a little later than average date. The Regional and Intrastate nurseries were sown April 17; Mr. Clark's 3-row and single row nurseries and the durum nursery were sown on the 18th and 19th. The wheat varietal plots were sown on the 20th. Rain on the 21st temporarily held up seeding operations.

The rust nurseries were sown on April 23, the oat and barley varietal plots on the 24th, the local 9-row nursery the 25th, the 5-foot rows on the 26th, and the barley nursery on the 27th.

The unseeded land was worked up again yesterday and an acre of wheat in increase plots was seeded this morning. Seeding of the wheat nursery probably will be completed tomorrow. The prevailing low temperatures have retarded germination of seed so that there probably will be little difference in time of emergence from seed already sown.

Land has been prepared for flax, but the final preparation of the land will not be completed until just before seeding so as to destroy the weeds that will emerge in response to the recent rains.

The total precipitation in April of 4.24 inches exceeded any previous record for April at Mandan in the past 26 years. In the precipitation records at Bismarck since 1875, this year's record for precipitation was exceeded only in 1878.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Apr. 30)

The April rainfall has broken all records at this station with a total of 5.02 inches of precipitation, which included moisture from snow early in the month. Week-end rains have been especially abundant. The steady drizzle that began Saturday evening, April 20, continued for about 30 hours and rained 2.39 inches. A similar rain that began just a week later produced 1.70 inches in nearly 24 hours. Nearly all of the rain for the month was absorbed by the fields with no appreciable run-off.

Seeding had proceeded for a week when the heaviest rainfall occurred. Cloudy, misty weather prevented seeding for another week. During the week of seeding, April 15 to 20, the rotation plots, spring wheat nursery, barley nursery, and smut nursery were seeded. Seeding was resumed today with the sowing of the field plots of spring wheat.

Field plots of winter wheat sown in September remained too dry to germinate last fall and are now just emerging. The winter nursery, sown in moist soil in August, germinated to a good stand and dried out badly before winter. There is now a small percentage of live plants in most varieties.

The mean temperature for April has been 37.2°, about 5° below normal. The maximum temperature was 74°, recorded on the 28th, and the minimum was 6° on the 5th. The last killing frost was last night with a temperature of 28° and the maximum this afternoon is about 44°.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (May 1)

Precipitation since September 1 at Fargo has totalled 5.00 inches, half of it falling before January 1 and half of it since. This is barely half of the normal for this period. However, snow and showers during April have been sufficient to supply moisture for germination.

Dr. Waldron's first nursery seeding was on April 20, and the durum nursery seeding began April 22. Nothing has yet emerged, but root growth has been good.

Moisture conditions at Langdon are slightly better at the moment, owing to heavier snows and showers. Seeding there has been delayed by the weather, and wheat varieties probably will go in this week-end, and the nursery next week.

Prospects are that grasshoppers again will be plentiful in eastern North Dakota.

By using an inoculation chamber built of Presdwood, 4 x 6 feet, and 2 feet high, covered with burlap, it has been possible to obtain a heavy stem rust infection in the greenhouse in mature plants. Inoculation was with race 17, a "durum race". Material tested consisted of five plants each of 100 different F_3 and F_4 progenies from promising crosses.

IDAHO

ABERDEEN SUBSTATION, ABERDEEN (Cereal Agronomy, Harland Stevens) (May 4)

Seeding of all nurseries and plots has been completed with the exception of a few late harvested hybrids, of which two generations a year are being grown. The first seeding this year was made on March 23, which is nearly three weeks earlier than normal.

All nurseries have emerged and most of them have made satisfactory growth; in an average year they would only just be emerging. Irrigation water supplies in southern Idaho are rather ample. The precipitation was decidedly below normal in 1939, but since January 1, 1940, the total is somewhat above normal. The filling of most reservoirs and a few good spring rains have made the crop prospects look rather favorable.

The total precipitation for April was 1.80 inches, while the average for April for the past 28 years is 0.92 inch.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat and Flax Improvement, O. A. Vogel) (May 1)

The spring opened early, resulting in spring seedings in the Big Bend during the last of March. However, for the eastern end of the Palouse area the spring has been wet, cold, and late and much of the spring seeding is still not done.

The nursery materials at Pullman, Pomeroy, and Walla Walla have been seeded and have emerged. In the Pullman nursery one variety of flax, Buda 80 (Rio x B. Golden) C. I. 1014, emerged with exceptionally vigorous seedlings. About half of the varieties in the uniform flax nursery emerged with vigorous seedlings, while the remaining varieties have just fair stands of rather weak seedlings. This nursery appears to be rather interesting from the standpoint of varietal differences in vigor of seedlings. The uniform flax nursery which is to be established at Tekoa, will not be seeded for about 10 days because of heavy infestations of wild oats in that area and because of the late, wet spring.

The fall-sown materials at Pullman, Pomeroy, and Walla Walla look well at this time, there being no reduction in stand as the result of winter injury.

The rainfall in the State has been above normal, resulting in encouraging prospects for good crops.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Apr. 30)

Cool, cloudy weather has prevailed during the last half of April, although the mean temperature of 47.0° was near the normal. Precipitation likewise was approximately normal (2.19 inches).

All seeding of small grains was completed during the early part of the month. Growth has been satisfactory and the nursery at this time is from 4 to 6 inches high.

Winter wheat in Cache County and in northern Box Elder county is especially promising. Some poor stands were observed in the southern portion of the Box Elder winter wheat region.

The maximum temperature for April was 78°, on the 19th. A minimum of 24° was recorded April 30 following a rather heavy shower.

A general water shortage is still predicted owing to the rapid disappearance of snow in the mountains.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Apr. 28) [Written from Tucson, Ariz.]

Californians are becoming concerned about stem rust. In the Imperial Valley, where the crop is being harvested, a loss of 60 to 70 percent on the 16,000 acres in the Valley has occurred. In the two leading varieties, Ramona and White Federation, the damage was about equal. Only one field of Ramona (early seeding) was seen that was plump enough for milling use, and many were complete failures. Four experimental or seed-increase plantings of White Federation 38 were seen in the Valley. In only one small patch did sufficient rust develop to produce shriveling, although the occurrence and pustule development were rather heavy. At the Yuma station rust damage was not so severe, but there also White Federation 38 was developing late pustules, mostly of a 1 and 2 type to give a 30 percent rust reading as compared with 100 percent for Ramona.

Grain in Riverside County is badly rusted, and stem rust on wheat occurs generally over the San Joaquin Valley. Barley has not rusted much anywhere, but oats are being hit hard in several sections.

Heading notes and hybridization work at Davis have nearly been completed. The crop there looks well.

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C E R E A L C O U R E I R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 May 25, 1940 No. 7

Personnel (May 11 - 25) and Field Station (May 1 - 15)

PERSONNEL ITEMS

Dr. A. G. Johnson, in company with Dr. H. D. Barker, of the Bureau of Plant Industry, Dr. R. J. Haskell of the Extension Service, and Mr. Guy S. Meloy, of the Agricultural Marketing Service, went to Wilmington, Delaware, on May 20 to confer with officials of the Bayer-Semesan Company regarding new developments in seed disinfectants.

Miss Mary L. Martini left Washington on May 24 on her annual trip in the barley areas of Idaho and Utah to take notes and compile data on cooperative barley experiments.

RECENT PUBLICATIONS

Loren L. Davis and Jenkin W. Jones. Fertilizer Experiments with Rice in California. U. S. Dept. Agr. Tech. Bul. 718, 22 pp., 1 fig. April 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

J. H. Martin and J. C. Stephens. The Culture and Use of Sorghums for Forage. U. S. Dept. Agr. Farmers' Bul. 1844, 42 pp., 31 figs. March 1940.

Max E. McCluggage. A Review of the Literature on Wheat Conditioning. Bul. Assoc. Oper. Millers, pp. 1026-1031. May 1940. (Contribution No. 67 of the Department of Milling Industry, Kansas Agricultural Experiment Station, in cooperation with the other State agricultural experiment stations of the hard winter wheat region and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

L. F. Randolph. Card Mounts for Handling Root Tips in the Paraffin Method. Stain Technol. 15(2): 45-48, illus. April 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Department of Botany, New York State College of Agriculture, Cornell University, Ithaca, N. Y.)

H. A. Rothenhiser and J. W. Taylor. Effects of Soil Type, Soil Sterilization, and Soil Reaction on Bunt Infection at Different Incubation Temperatures. Phytopath. 30(5): 400-408, figs. 1-2. May 1940.

Ralph W. Smith. Cereal Crops in Western North Dakota--Dickinson Substation. N. Dak. Agr. Expt. Sta. Bimo. Bul. 2(3): 8-11. January 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

DIVISION OF CEREAL CROPS AND DISEASES

CALENDAR YEAR 1939

In the calendar year 1939, 144 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural experiment stations, in private journals, or as mimeographed unnumbered publications. In 1939, 150 manuscripts were submitted for publication. There remain unpublished as of December 31, 1939, 46 manuscripts submitted in 1939, 6 submitted in 1938, and 5 submitted in 1937.

GENERAL OR MISCELLANEOUS

Bartel, A. T., and Briggs, Ian A. Small Grain Varieties for Northern Arizona. Ariz. Agr. Expt. Sta. Bul. 166, 35 pp., illus. May 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

Beachell, H. M. Cereal Nursery Seeders. (Note) Amer. Soc. Agron. Jour. 31(3): 265-268, illus. March 1939. (Joint contribution of the Division of Cereal Crops and Diseases and the Texas Agricultural Substation No. 4, Beaumont, Tex.)

Brown, Edgar. Preserving the Viability of Bermuda Onion Seed. Science (n.s.) 89(2309): 292-293. March 31, 1939.

_____ Development of Seed Testing. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 11 pp. July 1939. [Mimeographed.]

_____ and Toole, E. H. Evaluation of Seedlings. Assoc. Internatl. Essais Semences Compt. Rend. (Internatl. Seed Testing Assoc. Proc.) No. 2: [89]-95. 1939. (Stockholm 19)

_____ and Toole, E. H. Evaluation of Seedlings. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 4 pp. June 1939. [Mimeographed.]

Hurd-Karrer, Annie M. Antagonism of Certain Elements Essential to Plants Toward Chemically Related Toxic Elements. Plant Physiol. 14(1): 9-29, illus. January 1939.

Jenkins, Merle T. Arthur Alfred Bryan. Amer. Soc. Agron. Jour. 31(12): 1062-1063. December 1939.

Leukel, R. W., and Nelson, O. A. Chlorine Gas as a Seed Disinfectant. (Phytopath. Note) Phytopathology 29(10): 913-914. October 1939. (Joint investigation of the Bureau of Plant Industry and the Bureau of Entomology and Plant Quarantine.)

Martin, L. F., Balls, A. K., and McKinney, H. H. Protein Changes in Mosaic-Diseased Tobacco. Jour. Biol. Chem. 130(2): 687-701, illus. October 1939. (These studies were conducted under Bankhead-Jones Project Special Research Fund 2-17, United States Department of Agriculture, Bureaus of Plant Industry and Agricultural Chemistry and Engineering cooperating.)

McCall, M. A. Bureau of Plant Industry Welcomes Turf Culture. Turf Culture 1(1): 6-9, illus. January 1939.

McKinney, H. H. Comparative Studies on Two Genotypes of Nicotiana tabacum resistant to Nicotiana virus. (Abs.) Phytopathology 29(1): 18. January 1939.

Smith, Ralph W. Autumn Colors. North and South Dakota Hort. 12(10): 117. October 1939.

Sprague, Roderick. Cereal Diseases in Oregon and Adjacent Washington in 1939. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 23(13): 220-221. July 15, 1939. [Mimeographed.] (Cooperation between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

_____ Foot Rots and Root Rots of Small Grains in Oregon. Oreg. Agr. Expt. Sta. Cir. of Inform. No. 207, 6 pp. September 1939. [Mimeographed.] [Supersedes Cir. of Inform. No. 99.] (Investigations conducted cooperatively by the Division of Cereal Crops and Diseases and the Department of Botany, Oregon Agricultural Experiment Station.)

_____ Cercosporella Foot Rot of Winter Grains in the Pacific Northwest. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 13 pp. December 8, 1939. [Mimeographed.] (Investigations conducted cooperatively by the Division of Cereal Crops and Diseases and the Idaho, Oregon, and Washington agricultural experiment stations.)

_____ and Cooke, Wm. Bridge. Some Fungi Imperfecti from the Pacific Northwest. Mycologia 31(1): 43-52. Jan.-Feb., 1939. ("Cooperative investigations by the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Department of Botany, Oregon Agricultural Experiment Station, Corvallis, Oregon.")

Thornberry, H. H., and McKinney, H. H. Purification of Nicotiana Virus 6 Protein. Phytopathology 29(3): 250-260, illus. March 1939. ("Studies conducted under Bankhead-Jones Project S.R.F. 2-17, U. S. Department of Agriculture, Bureaus of Plant Industry and Chemistry and Soils cooperating.")

BARLEY

Bartel, A. T., and Aepli, D. C. Arivat, Possible New Barley for Southern Arizona, Beats Vaughn at Mesa and Tucson. Ariz. Farmer--Producer 18(18): 18. November 11, 1939. (Cooperative investigation of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station at Mesa, Ariz.)

Burkert, George M., and Dickson, Allan D. A Comparison of Methods for the Determination of Diastatic Power of Malts. Cereal Chem. 16(5): 657-660. September 1939. (Cooperative investigations between the Division of Cereal Crops and Diseases and the University of Wisconsin.)

Burkhart, B. A. The Electrometric Determination of Diastatic Power of Malts. Cereal Chem. 16(5): 652-657. September 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Dickson, James G., Dickson, Allan D., Shands, H. L., and Burkhart, B. A. Sixth Annual Report on Barley Quality Studies, Including the Investigations Conducted during 1938-1939 on the Barley Grown in 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 157 pp. August 1, 1939. [Mimeographed at Madison, Wis.] (Cooperative investigations between the Wisconsin Agricultural Experiment Station and the Division of Cereal Crops and Diseases, and the agricultural experiment stations represented in the Barley Improvement Council.)

Dickson, James G., Dickson, Allan D., Shands, H. L., and Burkhart, B. A. Preliminary Survey of Barley Quality in 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 9 pp. October 20, 1939. [Mimeographed at Madison, Wis.] (Cooperative investigation between the Wisconsin Agricultural Experiment Station and the Division of Cereal Crops and Diseases, and the agricultural experiment stations represented in the Barley Improvement Council.)

_____ Shands, H. L., Dickson, A. D., and Burkhart, B. A. Barley and Malt Studies. V. Experimental Malting of Barleys Grown in 1937. Cereal Chem. 16(4): 468-480. July 1939. (Based on cooperative investigations between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station and other States cooperating in the Barley Improvement Council.)

Pope, Merritt N. Viability of Pollen and Ovules of Barley After Cold Storage. Jour. Agr. Res. 59(6): 453-463, illus. September 15, 1939. (G-1136)

Shands, R. G. Chevron, a Barley Variety Resistant to Stem Rust and Other Diseases. Phytopathology 29(2): 209-211. February 1939. (Cooperation between the Division of Cereal Crops and Diseases and the University of Wisconsin.)

Tapke, V. F. Influence of Environment, after Seedling Emergence, on Loose Smut of Oats and Covered Smut of Barley. (Abs.) Phytopathology 29(1): 22-23. January 1939.

BUCKWHEAT

Quisenberry, K. S., and Taylor, J. W. Growing Buckwheat. U. S. Dept. Agr., Farmers' Bul. 1835, 17 pp., illus. November 1939.

Sando, W. J. A Colchicine-Induced Tetraploid in Buckwheat. Jour. Hered. 30(6): 271-272, illus. June 1939.

CORN

Bowman, Donald H. Scientists on Search for Disease-Resisting Hybrids. Ohio Farmer 184: 2. September 23, 1939. (Cooperation between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Bryan, A. A., and Eckhardt, R. C. Hybrid Corn in Iowa. A Report of Progress. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 20 pp. [1939]. [Mimeographed at the Iowa Agr. Expt. Sta.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Dungan, G. H., Lang, A. L., Bigger, J. H., Koehler, Benjamin, and Bolin, Oren. Illinois Corn Performance Tests 1938. Ill. Agr. Expt. Sta. Bul. 450, pp. 227-272, illus. January 1939. (Cooperation between the Illinois Agricultural Experiment Station and the Division of Cereal Crops and Diseases and the Illinois State Natural History Survey.)

Elliott, Charlotte, and Robert, Alice L. Tripsacum dactyloides, Another Native Host of Aplanobacter stewarti. (Phytopath. Note) Phytopathology 29(3): 284-285. March 1939.

Hoppe, P. E. Relative Prevalence and Georgraphic Distribution of Various Ear Rot Fungi in the 1938 Corn Crop. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 23(9): 142-148, illus. May 15, 1939. [Mimeographed.] (Survey conducted by the Federal Grain Supervision, Bureau of Agricultural Economics, the Wisconsin Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

Jenkins, Merle T. New Developments That May Affect the Corn Industries. The Importance of Corn Hybrids to the Corn Industry. Contr. Iowa Corn Research Inst. 1(2): 207-212. January 1939. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

_____ Hybrid Corn. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 6 pp. [February 25, 1939.] [Mimeographed at the Iowa Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

[Jenkins, Merle T., compiler] Results of the Cooperative Uniform Comparisons of Corn Hybrids, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 40 pp. March 10, 1939. [Mimeographed.]

[Jenkins, Merle T.] Report of the Second Corn Improvement Conference (First Field Meeting) held at the University of Wisconsin, Madison, Wis., September 16-17, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 53 pp. March 30, 1939. [Mimeographed.]

Jenkins, Merle T. Seed Corn. U. S. Dept. Agr. Farmers' Bul. 1822, 14 pp., illus. April 1939.

Johann, Helen. Scolecospores in Diplodia zeae. Phytopathology 29(1): 67-71, illus. January 1939. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Jugenheimer, R. W. Hybrid Corn in Kansas. Kans. Agr. Expt. Sta. Cir. 196, 20 pp., illus. February 1939. (Cooperative investigations of the Department of Agronomy, Kansas Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

_____ Corn Made to Order. One-Fourth of U. S. Crop is Hybrid. Kans. Farmer 76(22): 33, 35. November 4, 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____ Hoegemeyer, L. C., Skold, L. N., Clapp, A. L., and Hollenbeak, H. D. Performance of Corn Hybrids and Varieties in Kansas, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 9 pp. [January 31, 1939.] [Mimeographed at the Kansas Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Longley, A. E. Knob Positions on Corn Chromosomes. Jour. Agr. Res. 59(7): 475-490, illus. October 1, 1939. (G-1142)

Maxwell, Louis R., and Kempton, J. H. Delayed Killing of Maize Seeds X-Rayed at Liquid Air Temperature. Wash. Acad. Sci. Jour. 29(9): 368-374, illus. September 15, 1939. (Cooperative investigations of the Bureau of Agricultural Chemistry and Engineering and the Bureau of Plant Industry.)

Miles, S. R. 1938 Indiana Corn Performance Tests. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 31 pp. [January 25, 1939.] [Mimeographed at the Purdue University Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

O'Mara, Joseph G. Cytological Observations on Zea-Euchlaena Hybrids. (Abs.) Genetics 24: 82-83. January 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the University of Missouri.)

Randolph, L. F., and Fischer, Harold E. The Occurrence of Parthenogenetic Diploids in Tetraploid Maize. Natl. Acad. Sci. Proc. 25(4): 161-164. April 15, 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the New York (Cornell) Agricultural Experiment Station.)

Rhoades, M. M. Recent Linkage Studies in Maize. VI. White Sheath-3 (ws3). Genetics 24(1): 62-63. January 1939.

_____ and Rhoades, Virginia H. Genetic Studies with Factors in the Tenth Chromosome in Maize. Genetics 24(2): 302-314, illus. March 1939.

Sayre, J. D. Corn Stomata. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unmimb. Pub.] 10 pp. [January 25, 1939.] [Mimeographed at the Ohio Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Sprague, G. F. Corn Hybrids for Missouri. Mo. Agr. Expt. Sta. Cir. 201, 27 pp., illus. January 1939. (Cooperative investigations of the Department of Field Crops, Missouri Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

_____ An Estimation of the Number of Top-Crossed Plants Required for Adequate Representation of a Corn Variety. Amer. Soc. Agron. Jour. 31(1): 11-16. January 1939. (Cooperative investigations of the Missouri Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

_____ Heritable Characters in Maize. 50-Vestigial Glume. Jour. Hered. 30(4): 143-145, illus. April 1939. (Contribution of the Missouri Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Stoneberg, Hugo. Louisiana Tests of Out-of-State Corn Hybrids, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unmimb. Pub.] 3 pp. [January 20, 1939.] [Mimeographed at the Louisiana Agricultural Experiment Station.] (Cooperative investigations of the Louisiana Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Ullstrup, Arnold J. Preliminary Observations on a Kernel Discoloration in Inbred and Hybrid Lines of Dent Corn. (Phytopath. Note) Phytopathology 29(10): 905-907, illus. October 1939. (Cooperative investigations, Purdue University Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Woodward, R. W., Tingey, D. C., and Evans, R. J. Tests of Corn Varieties and Hybrids in Utah. Utah Agr. Expt. Sta. Bul. 287, 32 pp. May 1939. (Contribution from the Department of Agronomy and Soils, Utah Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

Zuber, Marcus S., and Robinson, Joe L. 1938 Iowa Corn Yield Test. Iowa Agr. Expt. Sta. Bul. 379, 77 pp., illus. February 1939. (Cooperation between the Iowa Corn and Small Grain Growers' Assoc., the Farm Crops Subsection, Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

FLAX

Dillman, A. C. Observations on Flax Diseases in Texas. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 23(11): 195-196. June 15, 1939. [Mimeographed.]

_____ Observations of Flax Diseases in 1939. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 23(22): 366-367. December 1, 1939. [Mimeographed.]

OATS

Coffman, F. A. Results from the Cooperative Coordinated Oat Breeding Nurseries for 1938, and the Uniform Winter-Hardiness Nurseries for 1938-39. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 101 pp. July 15, 1939. [Mimeographed.]

_____ Heat Resistance in Oat Varieties. Amer. Soc. Agron. Jour. 31(9): 811-817. September 1939.

Longley, A. E., and Stanton, T. R. Chromosome Number in Dwarf Oats. (Note) Amer. Soc. Agron. Jour. 31(8): 733-735, illus. August 1939.

Murphy, H. C. Effect of Crown and Stem Rusts on the Relative Cold Resistance of Varieties and Selections of Oats. Phytopathology 29(9): 763-782, illus. September 1939. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Botany and Plant Pathology Section of the Iowa Agricultural Experiment Station.)

Phillips, Max, Goss, M. J., Davis, B. L., and Stevens, H. Composition of the Various Parts of the Oat Plant at Successive Stages of Growth, with Special Reference to the Formation of Lignin. Jour. Agr. Res. 59(5): 319-366, illus. September 1, 1939. (E-79) (Investigation of the Industrial Farm Products Research Division, Bureau of Chemistry and Soils, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Idaho Agricultural Experiment Station.)

Sprague, Roderick. Leaf Reddening in Oats in Oregon. Oreg. Agr. Expt. Sta. Cir. of Inform No. 208, 3 pp. October 1939. [Mimeographed.] (Cooperative investigations by the Division of Cereal Crops and Diseases and the Department of Botany, Oregon Agricultural Experiment Station.)

Stanton, T. R. The Problem of Maintaining Identity and Pure Seed of Southern Oat Varieties. (Abs.) Assoc. South. Agr. Workers Proc. 40: 61. 1939.

_____ Disease-Resistant Oat Varieties. U. S. Dept. Agr. Ext. Path. Serial No. 39: 70-71. August 1939. [Mimeographed.]

_____ Purer Oat Seed Sought in South. Practice of "Oats Are Just Oats" Must be Done Away with If We are to Improve Strains. South. Seedsman 2(11): 10. November 1939.

RICE

Goss, W. L., and Brown, Edgar. Buried Red Rice Seed. Amer. Soc. Agron. Jour. 31(7): 633-637. July 1939. ("Contribution from the U. S. Dept. of Agriculture, Washington, D. C., in cooperation with the State Department of Agriculture, Sacramento, Calif.")

J. Mitchell Jenkins. [Compiler] Rice. La. State Dept. Agr. and Immigr., Baton Rouge, La. 19 pp., illus. 5th ed. 1939. (Cooperative investigations of the Louisiana Agricultural Experiment Station at the Rice Experiment Station, Crowley, and the Division of Cereal Crops and Diseases.)

_____ Biennial Report of the Rice Experiment Station, Crowley, Louisiana, 1937-1938. 32 pp., illus. [1939.] (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Louisiana Agricultural Experiment Station.)

Jodon, N. E. Progress in Improving Rice Varieties. La. Agr. Expt. Sta. Rice Expt. Sta., Crowley, Bien. Rpt. 1937-38: 15-17. [1939.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

SORGHUMS AND BROOMCORN

Couch, James F., Briese, Reinhold R., and Martin, J. H. Hydrocyanic Acid Content of Sorghum Varieties. Wash. Acad. Sci. Jour. 29(4): 146-161. April 15, 1939. (Cooperative investigations of the Pathological Division, Bureau of Animal Industry, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

Sieglinger, J. B., and Martin, J. H. Tillering Ability of Sorghum Varieties. Amer. Soc. Agron. Jour. 31(6): 475-488, illus. June 1939.

Stephens, J. C., and Quinby, J. R. The D Rs P Linkage Group in Sorghum. Jour. Agr. Res. 59(10): 725-730. November 15, 1939. (G-1139) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station at Substation No. 12, Chillicothe, Tex.)

WHEAT

Atkins, I. M. Reaction of Winter Wheat Varieties to Loose Smut Infection at Texas Substation No. 6, Denton, Tex., 1938 and 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 4 pp. December 28, 1939. [Mimeographed.]

Barmore, M. A., Finney, K. F., and McCluggage, M. E. Quality Data for Winter Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter Wheat Region in 1937. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 15 pp. January 1939. [Mimeographed at Manhattan, Kans.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Department of Milling Industry of the Kansas Agricultural Experiment Station. These studies are part of the Wheat Improvement Program carried on in cooperation with the various State agricultural experiment stations of the hard winter wheat region.)

_____ Finney, K. F., and McCluggage, M. E. Quality Characteristics of Hard Red Winter Wheat Varieties Grown in Cooperative Plot and Nursery Experiment in the Hard Red Winter Wheat Region in 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 26 pp. December 1939. [Mimeographed at Manhattan, Kans.] (The studies herein reported were made in the Hard Winter Wheat Quality Laboratory, Manhattan, Kans., by the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, in cooperation with the Department of Milling Industry of the Kansas Agricultural Experiment Station. They are a part of the Wheat Improvement Program carried on in cooperation with the various State agricultural experiment stations of the hard winter wheat region.)

[Bayles, B. B., compiler] Foreign Wheat Introductions, III. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 15 pp. February 15, 1939. [Mimeographed.]

_____ Report of the Sixth Eastern Wheat Conference, Wooster, Ohio, June 10, 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 10 pp. June 16, 1939. [Mimeographed.]

Bayles, B. B., and Taylor, J. W. Wheat Improvement in the Eastern United States. Cereal Chem. 16(2): 208-223, illus. March 1939.

Bever, Wayne M. Reinoculation of Resistant Varieties of Wheat with Purified Physiologic Races of Tilletia tritici and T. levis. Phytopathology 29(10): 863-871. October 1939. (Cooperative investigation of the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

Clark, J. Allen. Results of Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1938, with Averages for 1929 to 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 41 pp. January 25, 1939. [Mimeographed.]

Fellows, Hurley, and Ficke, C. H. Soil Infestation by Ophiobolus graminis and Its Spread. Jour. Agr. Res. 58(7): 505-519, illus. April 1, 1939. (G-1125) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Fifield, C. C., and Clark, J. A. Chemical, Milling, and Baking Experiments with Hard Red Spring Wheats, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 22 pp. July 11, 1939. [Mimeographed.]

_____ Suneson, C. A., Fellows, H. C., Weaver, Ray, Hayes, J. F., Hoffecker, Elwood, Christie, Alfred, and Rothgeb, B. E. Quality Studies of Wheat Varieties Grown in the Western Region in 1937. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 38 pp. February 1939. [Mimeographed.]

Finney, K. F., and Barmore, M. A. Maintaining a Uniform Temperature in an Experimental Baking Oven. Cereal Chem. 16(2): 289-292, illus. March 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station, in the Hard Winter Wheat Quality Laboratory, Manhattan, Kans.)

Holton, C. S., and Suneson, C. A. Results from the Uniform Bunt Nurseries in the Western Region in 1938, with Averages for 1937. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. February 21, 1939. [Mimeographed.]

Humphrey, H. B., Johnston, C. O., Caldwell, R. M., and Compton, LeRoy E. Revised Register of Physiologic Races of Leaf Rust of Wheat (Puccinia triticina). U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 18 pp. January 1939. [Mimeographed.]

Hurd-Karrer, Annie M. Hydrogen-Ion Concentration of Leaf Juice in Relation to Environment and Plant Species. Amer. Jour. Bot. 26(10): 834-846. December 1939.

Johnston, C. O., and Lefebvre, C. L. A Chlorotic Mottling of Wheat Leaves Caused by Infections of Bunt Tilletia laevis. Phytopathology 29(5): 456-458, illus. May 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

McCluggage, Max E. Determination of Moisture Requirements for Tempering Wheat for Experimental Milling. Bul. Assoc. Oper. Millers, pp. 962-963. June 1939. (Contribution No. 61 from the Department of Milling Industry, Kansas Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the State agricultural experiment stations of the hard winter wheat region.)

_____ Anderson, J. E., and Larmour, R. K. Comparison of the Allis-Chalmers and the Buhler Automatic Mills. Cereal Chem. 16(5): 610-619, illus. September 1939. (Contribution No. 60 of the Department of Milling Industry, Kansas Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the State agricultural experiment stations of the hard winter wheat region.)

McFadden, E. S. Brown Necrosis, a Discoloration Associated with Rust Infection in Certain Rust-Resistant Wheats. Jour. Agr. Res. 58(11): 805-819, illus. June 1, 1939. (G-1129) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

_____ Early Blackhull Resists Stem Rust in Texas. (Phytopath. Note) Phytopathology 29(7): 644-645. July 1939. (Cooperation between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

Martin, J. Foster. The Application of Some Plant Breeding Principles to Wheat Improvement. Bul. Assoc. Oper. Millers, pp. 941-942. March 1939. (Contribution from the Division of Cereal Crops and Diseases and the Oregion Agricultural Experiment Station.)

Melchers, L. E., and Johnston, C. O. The Wheat Stem and Leaf Rust Epidemics of 1938 in Kansas. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. Sup. 116: [51]-68, illus. October 15, 1939. [Mimeographed.] (Contribution No. 394 from the Department of Botany, Kansas Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases.)

O'Mara, J. G. Observations on the Immediate Effect of Colchicine. Jour. Hered. 30(2): 35-37. February 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

Quisenberry, K. S. Comparison of Winter Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter Wheat Region in 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 89 pp. January 1939. [Mimeographed.]

_____ Report of the Great Plains Uniform Winter-Hardiness Nurseries of 1937-38. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 4 pp. January 26, 1939. [Mimeographed.]

_____ Report of the Great Plains Uniform Winter-Hardiness Nurseries of 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 4 pp. December 15, 1939. [Mimeographed.]

_____ and Bayles, B. B. Growth Habit of Some Winter Wheat Varieties and Its Relation to Winterhardiness and Earliness. Amer. Soc. Agron. Jour. 31(9): 785-789, illus. September 1939.

Robertson, D. W., Fifield, C. C., and Zeleny, Lawrence. Milling, Baking, and Chemical Properties of Colorado-Grown Marquis and Kanred Wheat Stored 9 to 17 Years. Amer. Soc. Agron. Jour. 31(10): 851-856, illus. October 1939. (Cooperation between the Colorado Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division, Bureau of Agricultural Economics.)

Rodenhiser, H. A., and Clark, J. Allen. Summary of Uniform Spring-Wheat Bunt Nursery, 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. January 3, 1939. [Mimeographed.]

_____ and Quisenberry, K. S. Summary of the Great Plains Uniform Winter Wheat Bunt Nursery, 1937-38. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] [5] pp. January 1939. [Mimeographed.]

[Salmon, S. C.] Report of the First Conference of the Hard Red Winter Wheat Quality Advisory Committee. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 5 pp. May 24, 1939. [Mimeographed.]

Salmon, S. C., and Taylor, J. W. Growing Wheat in the Eastern United States. U. S. Dept. Agr. Farmers' Bul. 1817, 59 pp., illus. May 1939.

Sando, W. J. Effect of Mutilation of Wheat Seeds on Growth and Productivity. Amer. Soc. Agron. Jour. 31(6): 558-565, illus. June 1939.

Sears, E. R. Monosomes, Trisomes, and Segmental Interchanges from a Haploid of Triticum vulgare. (Abs.) Genetics 24: 84. January 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the University of Missouri.)

_____ Amphidiploids in the Triticinae Induced by Colchicine. Jour. Hered. 30(2): 38-43, illus. February 1939. (Cooperation between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

_____ Cytogenetic Studies with Polyploid Species of Wheat. I. Chromosomal Aberrations in the Progeny of a Haploid of Triticum vulgare. Genetics 24: 509-523. July 1939. (Cooperation between the Division of Cereal Crops and Diseases and the Department of Field Crops, Missouri Agricultural Experiment Station.)

Smith, Glenn S. Durum Wheat Breeding. N. Dak. Agr. Expt. Sta. Bimo. Bul. 1(4): 10-12. March 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

Smith, Luther. Recirpocal Translocations in Triticum monococcum. (Abs.) Genetics 24: 88. January 1939. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Department of Field Crops, Missouri Agricultural Experiment Station.)

_____ Mutants and Linkage Studies in Triticum monococcum and T. aegilopoides. Mo. Agr. Expt. Sta. Res. Bul. 298, 26 pp., illus. April 1939. ("Field Crops Department, Missouri Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture cooperating.")

Smith, Ralph W. Grashopper Injury in Relation to Stem Rust in Spring Wheat Varieties. Amer. Soc. Agron. Jour. 31(9): 818-821. September 1939. (Contribution from the Division of Cereal Crops and Diseases in cooperation with the North Dakota Agricultural Experiment Station.)

Sprague, Roderick. Controlling Seed-Borne Stinking Smut of Wheat by Disinfectants. Oreg. Agr. Expt. Sta. Bul. 363, 33 pp. June 1939. (Cooperative investigations by the Oregon Agricultural Experiment Station and the Division of Cereal Crops and Diseases.

Suneson, C. A. Results from Cooperative Wheat Varietal Experiments in the Western Region in 1938, with Averages for 1931 to 1938. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 43 pp. March 10, 1939. [Mimeographed.]

Swanson, A. F. Long-Time Storage of Winter Wheat. (Note) Amer. Soc. Agron. Jour. 31(10): 896-897. October 1939. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Taylor, J. W., Bayles, B. B., and Fifield, Colburn C. A Simple Measure of Kernel Hardness in Wheat. Amer. Soc. Agron. Jour. 31(9): 775-784, illus. September 1939.

_____ Rodenhiser, H. A., and Bayles, B. B. Reaction of Wheat Varieties and Related Species to Powdery Mildew in the Greenhouse. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 7 pp. April 11, 1939. [Mimeographed.]

Vogel, Orville A. Studies of the Relationships of Some Features of Wheat Glumes to Resistance to Shattering and of the Use of Glume Strength as a Tool in Selecting for High Resistance to Shattering. [Abstract of a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Agronomy, State College of Washington (1939).] Wash. State Col. Res. Studies 7(4): 199-200. December 1939.

WEEDS

Bakke, A. L., Goessler, W. G., and Loomis, W. E. Relation of Root Reserves to Control of European Bindweed Convolvulus arvensis L. Iowa Agr. Expt. Sta. Res. Bul. 254: [114]-144, illus. May 1939. (Project 484 of the Iowa Agricultural Experiment Station in cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

Barr, C. G. Application of the Ceric Sulphate Method in the Analysis of Carbohydrates in the Roots of Lepidium and Convolvulus. Plant Physiol. 14: 285-296, illus. 1939.

Crafts, A. S. The Relation of Nutrients to Toxicity of Arsenic, Borax, and Chlorate in Soils. Jour. Agr. Res. 58(9): 637-671, illus. May 1, 1939. (G-1128) ("The experiments herein reported were conducted cooperatively by the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Botany Division of the California Agricultural Experiment Station, at Davis, Calif.")

[illegible] Soils. Hilgardia 12(3): 177-200, illus. January 1939. (Cooperative project on control of noxious weeds conducted by the California Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Hixon, R. M., and Bakke, A. L. Portable Field Drier. (Note) Amer. Soc. Agron. Jour. 31(3): 268-270, illus. March 1939. (Journal Paper No. J-[illegible] of the Iowa Agricultural Experiment Station, Project 484, in cooperation with the U. S. Department of Agriculture.)

[Kephart, L. W., compiler.] A Reading List on Weeds and Weed Control. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 5 pp. April 5, 1939. [Mimeographed.]

Kephart, L. W. Killing Poison Ivy with Chemicals. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. May 20, 1939. [Mimeographed.]

_____ The Eradication of Wild Honeysuckle. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. June 12, 1939. [Mimeographed.]

Kephart, L. W. Eradication of Canada Thistle with Chemicals. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 1 p. June 20, 1939. [Mimeographed.]

_____ Crabgrass Control. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. June 21, 1939. [Mimeographed.]

_____ The Control of Wild Carrot. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. June 27, 1939. [Mimeographed.]

_____ Eradication of Water-Hyacinth. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. June 27, 1939. [Mimeographed.]

_____ Control of Dandelions in Lawns. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. June 28, 1939. [Mimeographed.]

_____ Eradication of Johnson Grass with Chemicals. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. June 28, 1939. [Mimeographed.]

_____ New Aspects of Weed Control. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. July 7, 1939. [Mimeographed.]

_____ Control of Bermuda Grass. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. July 8, 1939. [Mimeographed.]

_____ Chemical Weed-Killers for Sterilizing Soil. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 6 pp. August 10, 1939. [Mimeographed.]

Rosenfels, R. S., and Crafts, A. S. Arsenic Fixation in Relation to the Sterilization of Soils with Sodium Arsenite. Hilgardia 12(3): 203-229, illus. January 1939. (Cooperative project on control of noxious weeds conducted by the California Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Seely, C. I. The Control and Eradication of Wild Morning Glory (Convolvulus arvensis L.). U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 5 pp. [January 31, 1939.] [Mimeographed at the Idaho Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Idaho and Washington agricultural experiment stations.)

_____ The Control and Eradication of Wild Morning Glory (Convolvulus arvensis L.). Idaho Agr. Expt. Sta. Mimeo-Leaflet No. 29, 5 pp. February 6, 1939. [Mimeographed.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Idaho and Washington agricultural experiment stations.)

Stahler, L. M., and Kephart, L. W. A Homemade Spreader for Dry Sodium Chlorate. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 11 pp., illus. July 27, 1939. [Mimeographed.] (Cooperation between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station and the Minnesota Department of Agriculture, Dairy and Food.)

[Timmons, F. L., Evans, L. S., Stahler, L. M., and Seely, C. I., compilers] Progress Report of Cooperative Weed Investigations. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 136 pp. May 1, 1939. [Mimeographed.]

APPENDIX

Publications Received Too Late for Inclusion in 1938 Annual Report

Robertson, D. W., and Wiebe, G. A. Genetic Factors in Barley. Colo. Agr. Expt. Sta. [Circ.] (7820-38) 25 pp. [1938.] [Mimeographed.] (Cooperation between the Colorado Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Seely, C. I. Wild Morning Glory Control in the Dry-Land Wheat Districts of the Pacific Northwest. In East. Oreg. Wheat League Proc. (1938) 11: 17-21. [1938.] (Cooperation between the Division of Cereal Crops and Diseases and the Idaho and Oregon agricultural experiment stations.)

_____ The Control and Eradication of Wild Morning Glory. In Wash. Irrig. Inst. Proc. (1938) 26: 19-20. [1938.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the agricultural experiment stations of Idaho and Washington.)

May 25, 1940

NOTICE TO FIELD MEN

In preparing field payrolls, please see that a payee's name is written the same each succeeding month (one Christian name must be in full). Do not give "John H. Smith" one month, and "J. Henry Smith" the next.

In requesting appointments, when possible be exact about the effective date. If an appointee starts work later than the date his appointment becomes effective a change in appointment must go through the regular channels, and this sometimes delays issuance of initial pay check.

H. S. Smith
Junior Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (May 15)

Growth of winter wheat during the first half of May has been very satisfactory. There was no winter injury in the field or nursery plots at University Farm and only in a few rows of the nursery at Waseca. Growth is less vigorous at Waseca because of lack of moisture. While mean temperatures during the past winter were normal, no extremely low temperatures were recorded. The minimum was -22°, recorded on January 17.

Seeding of spring small grains was begun at University Farm on April 24 and all plots have emerged with good stands. The weather has been cool during the first half of May, with a maximum temperature of 85°, recorded on May 12. A general rain fell over Minnesota and the other spring wheat States on May 13 and 14. The temperature at University Farm this morning was 34° and frost was reported in some sections of Minnesota.

Corn planting was completed at University Farm last week.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (May 10)

Small grains have made good progress during the first part of May. Except for a rain of 1.33 inches and one cloudy day, the weather has been clear and warm. Nearly all grain is headed now, although a few late fields of wheat and some spring-sown oats are not completely headed.

The rust situation is not at all encouraging at this time. In spite of clear weather for the most part, stem rust of wheat has spread quite rapidly. In fields north of Dallas, Tex., it has reached epidemic proportions and probably will damage many fields. From reports and observations, rust seems to be prevalent throughout all of north-central Texas as far north as the Oklahoma line. The situation in Oklahoma is not known.

On May 11 and 12 Dr. G. A. Wiebe and the writer made a hurried trip to the small grain experiments at Chillicothe and Amarillo, Tex., and Woodward and Lawton, Okla. A small amount of leaf rust was found at Wichita Falls, Tex., and one pustule of stem rust was found north of Clinton, Okla.

Crown and stem rust of oats were found on the Substation today.

(May 20)

In spite of seemingly dry and windy weather during the past 10 days, stem rust has made rapid progress in this period. Early fields of Fultz wheat in the eastern part of this county are starting to ripen. Although plants in these fields are well covered with rust, it appears that the crop may escape serious injury because of early maturity. Later fields of Mediterranean and Tennarq wheat are highly infected and will be injured by rust to some extent. A general rain over this area (1.91 inches at the Substation on May 18) will not help the rust situation any.

Crown rust and stem rust of oats were found on May 10, which is rather late. The oat crop is well along toward maturity and it seems improbable that these diseases will injure oats this year.

Owing to favorable rains this month, the small grain crop has materially improved in appearance and some very good yields probably will be obtained. Barley is beginning to ripen and a good crop is in prospect. Both covered and loose smuts of barley and loose smut of oats are widely prevalent this year. The amount of infection in some fields is quite high.

A field day was held on May 17. Favorable weather prevailed and more than 1,000 visitors were present. Dr. B. B. Bayles visited the Substation on May 16 and 17.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 10)

Two good rains, totaling 1.96 inches, during the last few days of April and another of 1.48 inches on May 8 have been a great benefit to winter wheat in Kansas. However, the spring here still is considered late and cold and much of the winter wheat in Kansas is late. On a half-day trip in central Kansas on May 6 most of the wheat seen was observed to be only 8 to 10 inches tall.

Traces of leaf rust from natural infection are just now beginning to appear in commercial fields in this locality. None was observed in central Kansas on May 6. No stem rust has been observed thus far.

Artificial inoculations of leaf rust in the rust nursery have just about been completed and stem rust inoculations will be started shortly. Primary inoculations of crown rust have been made in the oat rust nursery. Leaf-rust spread from infection centers in the winter wheat rust nursery now is beginning to be evident. Flecking is abundant. Mildew is severe on rank wheat in spots in the nursery. Oats and barley were severely retarded by the freeze of April 11 and 12 and will be late. Chinch bugs are extremely numerous at Manhattan and undoubtedly will destroy most barley seedings.

(May 17)

The condition of winter wheat in Kansas in the middle of May was somewhat better than at the same time in April. The estimated yield was raised from 59,000,000 bushels to about 72,000,000 bushels. Much of the crop in central Kansas still is late. So far only traces of leaf rust and no stem rust have been found in general fields. The season continues to be late and cold, factors which undoubtedly have effected the prevalence and distribution of rusts. Even in the rust nursery at Manhattan, where artificial inoculations have been made, natural spread of rust from infection centers has not yet occurred. In experimental plots many varieties and hybrids are heading but in general fields, only the earliest varieties are now beginning to head.

Reports from Oklahoma indicate that there is only a very light scattering of leaf rust of wheat in that State. No stem rust has been reported from Oklahoma as yet; however, the heavy infection of stem rust in north-central Texas is a rather disturbing factor in view of the lateness of the crop in central Kansas.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (May 17)

The favorable precipitation records for January and February and part of March were not sustained during April or during May up to the middle of the month, and small grain crops have been greatly set back by the drought. The small grains are about to head but the plants are small and weak. The spring-emerged wheat will make only a limited recovery. At best, yields will be very light. Weeds are becoming a factor and are rather certain to overtake the small grain if rainfall becomes more favorable from now until harvest. A considerable portion of the western third of Kansas is in a distressing condition as to small grain. There is a larger acreage of barley than usual, but the crop prospect will not justify the sowing.

A large acreage of grain sorghum is expected to replace the abandoned wheatland. A larger acreage of fallow for next year is expected since much wheatland has already been abandoned.

The first sorghum planting was completed on May 15. All sorghum planting plans have been completed and intermittent planting will continue until June 15.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (May 16)

Small grains made rapid growth during the first 10 days of May. Sufficient moisture was available and, while temperatures were a little lower than normal, the development of the crops was very satisfactory. On May 12 and 13 the temperature jumped to above 90°, accompanied by a strong south wind, and on May 14 and 15 the wind changed to the north, blew very hard and temperatures dropped to about 40°. After these four days of drying wind the winter wheat does not look so well. Where seedings are on cropped land very definite signs of drought may be noted. The wind caused considerable lodging in spots of heavy growth on fallow. The surface of the ground is dry and starting to crack.

Rye varieties are heading but no wheat variety has headed as yet, although Early Blackhull and Nebraska No. 28 will be out in a few days. Winter barley is now showing the first heads.

From present appearances the nursery both of winter and spring grains can continue for some time without rain. Moisture must be received very soon or the winter wheat field plots will suffer rather badly since there is little subsoil moisture available. Chinch bugs are found easily in all barley seedings.

Reports from over the State indicate that except for isolated areas rain is needed badly. There have been reports of dust storms in central Nebraska. As yet there has been no report of leaf rust in the State.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 16)

Moisture conditions have continued favorable during the first half of May, but wet soil resulting from abundant rainfall has caused some further delay in field work. Precipitation during this period amounted to 1.08 inches, of which 0.85 inch was recorded on May 12 and 13.

All cereal seedings have emerged with excellent stands except in a few minor instances.

The flax Regional nursery, the local 9-row nursery, and the selections in 5-foot rows for Mr. Dillman were sown May 10 and 11. Wet weather has prevented any further flax seeding. Land is being prepared today and the flax varietal plots will be sown tomorrow if weather permits.

The maximum temperature was 93° on the 11th and the minimum, 29° on the 14th.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 16)

The precipitation for May to date is 0.80 inch. This is slightly below normal for the first half of May, but moisture conditions are excellent after the high precipitation of 5.02 inches in April. Cool weather has prevailed during much of the time but the mean temperature was raised by a few hot days with a maximum temperature of 90° on the 11th. The minimum was 25° on the 1st, and a minimum of 29° was recorded on the 15th.

Cereal crops are making good growth despite a rather late start. Flax varieties sown a week ago are emerging with fairly uniform stands.

The seeding of cereal varieties is completed except for corn, proso, and sorghum and late seedings of flax.

Director H. L. Walster was a visitor at the Substation on May 10.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (May 16)

Moisture conditions both at Langdon and Fargo are very favorable at present. Nursery seeding is pretty well completed at both locations and emergence is better than usual for recent years.

Dates of seeding both at Langdon and Fargo and in the eastern half of North Dakota were later than usual owing to late snows, light rains, and poor drying weather. At Langdon, nursery seeding was interrupted three times in one week by light showers.

Durum hybrid material sown in the greenhouse February 6 and 7 is ripening 15 weeks after seeding and some will be sown in the field next week.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (May 14)

The cereal rusts are continuing their "blitzkrieg" in California and now are serious, or threaten to be before maturity, in all important producing areas. Recently losses up to 75 percent have been reported in the variety Ramona now ripe in southern counties of the San Joaquin Valley. Some late fields in central San Joaquin are now certain to be complete failures from rust.

At University Farm almost everything is present, including some probable above-average yields. On rye leaf rust has never been more severe. Oat plants are very large for this area, owing to cool weather, but both crown and stem rust are developing rapidly and threaten the crop. We have a number of Richland x Fulghum selections that have been resistant to stem rust, but these now prove to be very susceptible to crown rust. A very good crop of wild oats has developed in this area this year, but this generally has been cut for hay at a very early dough stage owing to rapid development of rusts.

Most of the barleys are turning color now. Maturity of this crop has been hastened by defoliation by scald (Rhynchosporium) and net blotch (Helminthosporium), both of which were very severe this year. As a result of this early maturity and an apparent partial resistance of most of the barleys to stem rust, general damage from rust is not expected. Leaf rust is only moderately severe on barley and wheat. Stem rust probably will kill the late wheat varieties before maturity, for they have just finished blooming and many culms are already girdled by pustules. Stripe rust is probably as abundant as ever before on University Farm. Some varieties have been 85 percent defoliated by Septoria. Then we also have our first local experience with "foot-rot," and this too struck hard. The causal organisms have not yet been identified, but the randomly distributed wheat plots show tremendous extremes in tillering, height, and indicated yield between different locations (i.e., 3 to 50 bushels per acre), and while growth differences are not so pronounced in barley many areas are "ripening white". There is a strong suggestion of differential resistance; White Federation 38 (and its parent type) seems most susceptible and Baart 38 (and Baart) most resistant among a group of 13 varieties.

Hessian fly are more numerous than last year in the cooperative breeding and genetic nurseries at Birds Landing.

Visitors this year have been most interested in our "Hybrid Barley" yield test. This involves triplicated, 3-row nursery plots of F_1 and parent types. Hybrid seed for the study was produced in natural crossing plots utilizing our male sterile character.

The Agronomy Division here will dedicate a new $50,000 seed warehouse next week. It is completely equipped for cleaning and treating all kinds of crop seeds. The Division has also acquired 50 additional acres of land, but is sacrificing about 10 acres and experiencing considerable disruption of fields, pipe lines, etc., due to a 4-lane highway that is being cut through the middle of the present farm. When it is finished we will be 4 miles nearer to Berkeley.

NOTE

It will be appreciated if contributors to the Cereal Courier will send their reports typed double space.

A.H.B.K.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 June 10, 1940 No. 8

Personnel (May 28 - June 10) and Field Station (May 16 - 31)

PERSONNEL ITEMS

Dr. C. Roy Adair was granted the degree of Ph. D. from the University of Wisconsin in July 1939.

Messrs. Mark A. Barmore, K. F. Finney, and Max E. McCluggage, of the Federal Hard Winter Wheat Quality Laboratory, Manhattan, Kans., and Messrs. C. F. Bode, T. F. Hartsing, H. K. Heizer, and V. H. Morris, of the Federal Soft Wheat Laboratory at Wooster, Ohio, were in Washington during the week of June 1 to confer with Department officials on the coordination of the work of the wheat quality research laboratories at Manhattan, Wooster, and Washington, D. C.

Mr. J. Allen Clark will leave Washington June 15 on his annual trip in Minnesota, Iowa, Nebraska, Colorado, Wyoming, and South Dakota to inspect and take notes on cooperative wheat experiments and confer with cooperating investigators on wheat research.

F. A. Coffman will leave Washington about June 10 for a trip in Ohio, Illinois, Indiana, Missouri, Kansas, Colorado, Nebraska, and Iowa, to consult officials of the Department and of State agricultural experiment stations on oat research. He will also inspect cooperative experiments as well as commercial fields of seed oats and obtain oat plants, seed, and diseased plant material for study in the laboratory during the fall and winter.

Mr. A. C. Dillman will go to New Brunswick, N. J., to spend June 12 in inspecting cooperative flax uniform varietal experiments.

Mr. Curtis H. Kyle will leave Washington within a few days on his annual trip in Georgia, Florida, South Carolina, and North Carolina to select and hand pollinate corn and obtain data from cooperative corn experiments.

Mr. Otto E. Rauchschwalbe left Washington on June 5 for a trip through West Virginia, Kentucky, Missouri, Kansas, and Nebraska to study cooperative cereal experiments and confer with workers at State agricultural experiment stations with respect to design of experiments and statistical interpretation.

Dr. S. C. Salmon left Washington June 8 on a trip through Iowa, Minnesota, South Dakota, North Dakota, Nebraska, Kansas, Nevada, California, Oregon, Washington, Idaho, and Montana to inspect experimental work with weeds and confer with State and Federal officials on the cooperative weed research program.

RECENT PUBLICATIONS

B. B. Bayles and C. A. Suneson. Effect of Awns on Kernel Weight, Test Weight, and Yield of Wheat. Amer. Soc. Agron. Jour. 32(5): 382-388. May 1940. (Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, in cooperation with the agricultural experiment stations of Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, and Washington.)

Robert C. Eckhardt and A. A. Bryan. Effect of the Method of Combining the Four Inbred Lines of a Double Cross of Maize upon the Yield and Variability of the Resulting Hybrid. Amer. Soc. Agron. Jour. 32(5): 347-353. May 1940. (Contribution from the Farm Crops Subsection, Iowa Agricultural Experiment Station, Ames, Iowa, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, cooperating.)

N. E. Jodon. Inheritance and Linkage Relationships of a Chlorophyll Mutation in Rice. Amer. Soc. Agron. Jour. 32(5): 342-346, figs. 1-2. May 1940. (Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, in cooperation with the Louisiana Agricultural Experiment Station.)

Ralph O. Snelling, Ralph A. Blanchard, and John H. Bigger. Resistance of Corn Strains to the Leaf Aphid, Aphis maidis Fitch. Amer. Soc. Agron. Jour. 32(5): 371-381, fig. 1. May 1940. (Cooperative investigations of the Illinois Agricultural Experiment Station, Illinois Natural History Survey, Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture.)

C. A. Suneson. A Male Sterile Character in Barley. Jour. Hered. 31(5): 213-214. May 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the California Agricultural Experiment Station.)

CORRECTION

In the Cereal Courier vol. 32, no. 7, May 25, 1940, page 63, citation 4 under Weeds should read as follows:

Crafts, A. S., and Rosenfels, R. S. Toxicity Studies with Arsenic in Eighty California Soils. Hilgardia 12(3): 177-200, illus. January 1939. (Cooperative project on control of noxious weeds conducted by the California Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (June 1)

The prospects for winter wheat in Minnesota are very satisfactory. There was little winter injury and there has been sufficient moisture for the plants to make excellent growth this spring.

The weather in May has been colder than usual but there has been enough moisture to keep the young cereal crop plants growing vigorously. Corn has been slow in germinating because of the cool temperatures. The rainfall in May was 2.23 inches at University Farm, mostly in the form of showers. Rainfall was recorded on 14 days of the month; the normal rainfall for May is 3.35 inches.

The highest temperature recorded during the month was 82° on May 5 and 31.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (May 25)

Rainy, cloudy weather has prevailed during the past 10 days, with a total precipitation of 3.29 inches and rain or dew every day. Temperatures were much below normal.

Stem rust of wheat continues to spread and although early varieties are ripening they are injured seriously by stem rust and further injury may be expected as the later varieties develop. The amount of infection varies widely from field to field and while many fields have very high infection and will suffer serious damage other fields appear to have escaped in a large measure. Stem rust of oats is spreading slowly, but as oats are beginning to ripen on farms no serious damage to oats is expected. Only a very small amount of crown rust of oats is present.

Mr. T. R. Stanton visited the station on May 21 to inspect the oat experiments. Mr. V. C. Hubbard of Woodward, Okla., Dr. K. S. Quisenberry of Lincoln, Nebr., and Mr. C. O. Johnston of Manhattan, Kans., visited the station on May 23.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (June 1)

Aside from a few scattered fields, the wheat harvest in Oklahoma promises to be one to two weeks later than in 1939. Moderately cool weather and scattered showers have enabled most fields to continue growth without serious injury even though the May rainfall was 2.14 inches below normal. Unless more rain falls soon it is likely that test weights will be light. Some barley and oat fields in southwestern Oklahoma are being harvested with binders now.

On the Station early varieties of oats, barley, and wheat are turning color although it is not likely that any varieties will be mature enough to harvest before the week of June 9.

Flax varieties are nearly through blooming.

On May 29, the County Agents from three Texas counties brought in a group of farmers and ranchers to view the cereals and grasses on the Station.

Leaf rust was first observed on the Station on May 25 although it has been evident south, east, and southeast of Woodward for a week or more. No stem rust has so far been found in this area.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 29)

On a trip through southern Kansas, Oklahoma, and Texas, beginning on May 21 and ending May 28, observations were made along the route on the development of rust and the wheat crop.

Stem rust of wheat was found as far north as Medford, Okla., on May 22. From there southward through central Oklahoma, the amount of stem rust gradually increased. In north-central Texas and at College Station in south-central Texas stem rust of wheat was extremely heavy. Rains have fallen over this entire area within the past 10 days and it was extremely wet at Denton.

It was noted that there are thousands of acres of extremely late winter wheat in south-central Kansas and north-central Oklahoma. The lateness of the crop seems to have been due to late germination and a very backward spring. Even on May 28 there were large areas in many fields between Enid, Okla., and Wichita, Kans., that had not yet headed. This late crop appears to be menaced by stem-rust infection. So far the spring has been cool and should it remain so, infection may not be so heavy as expected; however, hot weather is expected shortly and the late wheat probably will be damaged either by rust or hot weather.

Leaf rust of wheat is very backward in its development throughout the southern and central Plains area. Very little leaf rust was encountered in Kansas and Oklahoma.

A little crown and stem rust of oats were observed at Denton, Tex., but the large acreage of oats in southern Kansas, Oklahoma, and northern Texas seems to be almost free from rust infection.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (May 31)

There was a considerable deficiency of rainfall in April and most of May, which has seriously held back growth of the small grains. A 2-inch rain during the last week of May has revived the small grains somewhat and there is some hope of securing light yields of grain. The small grains are in competition with weeds, which may make it rather difficult to harvest the crop.

The recent rains have made conditions favorable for the planting of row crops. The first date of sorghum planting has been completed at this Station and the major planting will be done during the first week in June.

A large acreage of sorghums will be planted in Kansas this year. The demand for grain sorghum seed has been heavy.

Cutworms have given considerable trouble this spring, particularly in corn. The cutworm infestation has been apparently heaviest where the fields were covered with Russian thistles during the winter months.

The native grass has made very slow growth. Many pastures are almost totally covered with a dense growth of pepper grass.

The barley prospects are fairly favorable where sown on abandoned fallowed wheatland. The superiority of Flynn barley is quite evident over varieties brought in from outside the State.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 1)

Weather conditions during the last half of May have been generally favorable for crop development. Below-average temperatures prevailed during this period. The maximum temperature was 87° on the 31st and the minimum was 37° on the 25th and 26th. The total precipitation during this period, which occurred in scattered showers, amounted to only 0.12 inch. Higher temperatures and fairly strong winds during the past few days have promoted rapid evaporation and transpiration. Crops are not yet showing conspicuous injury from shortage of moisture but will soon need a good rain to maintain normal development.

The wheat, oat, and barley plots and nurseries appear to be in excellent condition.

The flax nursery rows sown May 10 and 11 and the flax varietal plots sown May 17 emerged with good stands.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (June 1)

The seeding of cereal crops is completed except for one more date of seeding flax. Sorghum varieties were planted this week, corn varieties on May 21, and proso varieties on the 23d. These are emerging but rain is needed to insure perfect germination as the surface soil is dry. Earlier seeded cereal crops are growing rapidly and are in good condition.

The rainfall for May was 1.01 inches, which is 1 1/4 inches below normal. There was almost no rainfall during the last half of the month. The precipitation for 1940 to date is 7.25 inches, which is considerably above the normal of 5.09 inches for that period.

The maximum temperature for May was 90° on the 12th and the minimum, 25° on the 1st. There were comparatively few hot days and few freezing temperatures and, apparently, no injury from temperatures slightly below freezing on a few mornings. The mean for the month was 53.5°, slightly above normal.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (June 1)

Growing conditions throughout May have been favorable at Fargo and Langdon, in that temperatures have been slightly below normal, the mean for

the month being 52.0°, as compared with a normal of 54.5°. The precipitation for May at Fargo was 1.47 inches, an inch below normal, and with the increasing number of warm days the past week, this deficincy is becoming noticeable. At Langdon, the precipitation in May was slightly better than at Fargo, but the moisture-holding capacity of the soil is lower. Small grains in eastern North Dakota are a little later than normal for this period, stands are good, and condition still very favorable, but good rains are needed soon.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (June 1)

The precipitation for the 5-month period, January to May 1940, was 11.04 inches compared with an 11-year average of 6.95 inches for the same months. In February, 3.97 inches of rain fell, whereas the normal is only 1.33 inches. As a consequence, the soil nitrates were leached to lower than normal levels, causing winter wheat in many localities to appear yellow. In the most productive areas, however, the winter crop is in excellent condition.

The excessive rainfall caused the surface soil to pack so that stands of spring grains are rather thin in spots and decidedly unthrifty in appearance. Weeds and volunteer wheat are thicker than usual in spring grains, which caused someone to remark that "these are some of the wheatiest weeds I ever saw."

Partly as a result of the above-normal temperatures in April and May, both winter and spring cereals are heading 10 days to 2 weeks earlier than usual. All but the very late-maturing winter types now are fully headed and most of the spring varieties have been marked "first headed". Moderate temperatures will be necessary in June for spring cereals to produce an average crop.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (June 3)

Only a trace of rain has been recorded during the month of May, making a near record for recent years.

Winter wheat, which showed possibilities of bumper yields, is rapidly being reduced by the clear hot weather of the past five weeks. In general, cereal crops are looking worse as the season progresses. The clear, hot, dry weather has forced the production of a few culms to rapid heading; most of the tillers failed to develop.

Very early seeded spring grain in the nursery appears to be doing well but a second heavy irrigation is now necessary.

Heading data for the winter wheats were completed by the end of May. Most of the barley varieties likewise had headed, as well as the early wheat varieties.

The precipitation for May was 0.17 inch; the evaporation was 4.67 inches. The maximum temperature for the month was 86° F., recorded on May 11 and 30. A temperature of 32° was recorded as late as May 19, although no appreciable injury was observed on any of the tender plants that were up at the time.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 June 25, 1940 No. 9

Personnel (June 11 - 25) and Field Station (June 1 - 15)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on June 23 for various points in Kansas, Iowa, Minnesota, North Dakota, South Dakota, Montana, Idaho, Washington, Oregon, Wyoming, Wisconsin, and Illinois in the interests of cooperative flax investigations.

Dr. Charlotte Elliott spent June 20 at Arendtsville, Pa., taking notes on experimental corn plots and collecting insect vectors. She left for New York State on June 24 to take notes on corn experiments and collect insect vectors at Mineola, L. I., and Monsey, Rockland County.

Dr. M. T. Jenkins left Washington on June 22 for various points in Virginia, North Carolina, Georgia, Florida, Louisiana, Mississippi, Tennessee, and South Carolina for the purpose of conferring with Federal personnel and officials of State agricultural experiment stations on cooperative corn improvement.

Mr. L. W. Kephart will leave Washington about June 28 to make stops in Minnesota, Iowa, Missouri, Kansas, Nebraska, Colorado, Wyoming, Montana, Idaho, Utah, Oregon, Washington, and California for the purpose of inspecting cooperative weed experiments at field stations and to confer with workers at State agricultural experiment stations on cooperative weed research.

Dr. M. A. McCall returned on June 24 from a hurried trip to Oklahoma and Arkansas for the purpose of developing new plans for cooperative work in those States. The end of the fiscal year forced his immediate return, without opportunity for other stops.

Dr. H. A. Rodenhiser will leave Washington on June 28 for various points in Illinois, Wyoming, Idaho, Oregon, Washington, Montana, Utah, North Dakota, Minnesota, Iowa, Wisconsin, and Ohio to consult with officials of State agricultural experiment stations regarding cooperative smut investigations.

Mr. T. R. Stanton returned to Washington on June 6 from an extended trip in the South in the interests of oat improvement. He visited and inspected experiments with oats located at Gainesville and Quincy, Fla.; Tifton and Experiment, Ga.; Stoneville, Miss.; Baton Rouge, La.; Angleton, College Station, Temple, and Denton, Tex.; Lawton and Stillwater, Okla.; Fayetteville and Stuttgart, Ark.; Knoxville, Tenn.; Clemson and Hartsville, S. C.; and Statesville, N. C.

At Gainesville, Fla., several of the crown rust and smut resistant selections from Kanota x Victoria and from Lee x Victoria crosses appeared to be the most promising and an extensive back-crossing program is in progress in which segregates from a Bond x Fulghum are crossed back on Fulghum.

At Quincy, Fla., selections from the Georgia cross known as XH624 (Victoria x Norton) x Red Rustproof, and from the Nortex x Victoria (X3012), and from the Kanota x Victoria crosses appeared to be among the best. Some very good selections from Alber and Country Common are being tested. Nine selections were being increased for distribution to farmers.

At Tifton, Ga., some of the most promising lines were selections from crosses of Bond on Fulghum selections HC77 and HC726, Lee on Victoria, and Fulghum (winter type) on Victoria. The selection C.I. 3392, from the Lee x Victoria cross, appeared to be outstanding at Tifton this year.

A large nursery was being grown at Baton Rouge, La. Selections from the crosses of Nortex on Alber, Berger, and Victoria, appeared to be among the best. The original Alber oat has been distributed to farmers of Louisiana. It was estimated that about 5,000 acres of Alber were grown in 1939, and about 35,000 will be harvested in 1940. The limited resistance of this variety appears to give it sufficient protection to crown rust in most years under the conditions in southern Louisiana. However, it is hoped that within the next few years oats of the Red Rustproof type may be developed for Louisiana with better resistance to crown rust and with resistance to stem rust.

At both College Station and Temple, Tex., drought had materially affected the oats and most of the varieties and strains were short. The two new strains, Tex. M19-17 and Tex. M19-19, from the cross Nortex x Victoria, were among the best looking at Angleton, College Station, and Temple, Tex. These strains have been named Ranger and Rustler, respectively. Fultex was attracting some interest at Temple because of its excellent uniformity, early maturity, and short stiff straw. Selections from the Lee x Victoria cross have been showing high yielding ability at College Station and Temple.

Mr. McFadden has succeeded in isolating some rather promising selections with resistance to stem rust, crown rust, and smut, from the multiple hybrids, involving segregates from Nortex x Victoria, Fulghum x Victoria, and Richland x Victoria. Some of these selections were not hardy for the first time this season at College Station.

At Denton, Tex., the new disease resistant selections, Fultex, Ranger, Rustler, Tex. 11-35-41, and several other Nortex x Victoria selections appeared promising. It appeared that in general the Nortex x Victoria selections have a little better straw than Nortex or other Red Rustproof strains. Of the selections from the Fulghum x Victoria cross, Fultex, Tex. 12-33-90, and Tex. 12-34-13 were among the best. Apparently one of the weaknesses of these new strains is that they do not sufficiently approach the Fulghum type. However, it is believed that the short stiff straw of Fultex, and the ability to stand in the field after ripening will make it a valuable variety for growing where farmers want to combine their oats. Difficulty is being experienced in obtaining uniform strains from crosses on Fulghum.

At Lawton, Okla., some winter-killing had occurred in several of the fall-sown varieties.

At Stillwater, Okla., much winter-killing of fall-sown oats was experienced. Among the selections showing the greatest survival were Okla. 1-32-1446, Okla. 1-32-1460, and Fulghum (winter type) C.I. 2500. The Lee x Victoria selections, C. I. Nos. 3392 and 3393, showed outstanding winter survival.

At Fayetteville, Ark., Okla. 1-32-1446, Lee, Custis, and Fulghum (winter type) came through the winter with the highest survival. A large percentage of the hybrid strains sown last fall failed to survive. However, some selections from hybrids showed outstanding cold resistance, and selections from the cross Hairy Culberson x (Fulghum (winter type) x Victoria) were the hardiest.

At Stuttgart, Ark., about 14 Lee x Victoria selections were decidedly outstanding.

At Knoxville, Tenn., promising strains were secured from hybrids of Victoria and Bond on Fulwin, Tennex, and Tenn. 090. Both Fulwin and Tennex appeared to be meeting with favor among Tennessee farmers.

At Experiment, Ga., many of the Lee x Victoria selections were looking very promising. Ordinarily, it has been believed that only oats of the Red Rustproof type are adapted to conditions in north Georgia. However, as a result of the high yields obtained from the Lee x Victoria selections, it would appear that this opinion regarding the adaptation of Red oats, only, to the Cotton Belt is not altogether true. It is possible that Victoria contributes sufficient red oat genes to Lee crosses to make the selections adapted to the Cotton Belt. Furthermore, resistance to crown rust may play a much more important part in the adaptation of oats to the South than hitherto believed.

At Clemson, S. C., Fulwin, Ternex, Lee, and several of the Marett Fulghum strains appeared best this year. A visit was made to the oat breeding nursery conducted by Mr. K. J. Marett, Westminster, S. C., who was growing some very uniform lines of typical Fulghum, and also some reselections of the Fulgrain type. It is probable that Mr. Marett now has the best and purest seed of typical Fulghum oats of any breeder in the United States.

At the Coker's Pedigreed Seed Company, Hartsville, S. C., extensive and excellent oat breeding work is in progress. Victorgrain and Fulgrain Strain 4 have been designated for distribution. Some 7,500 bushels of each of these two new varieties will be available. It would appear that the most productive crosses have been Fulgrain x Victoria and Lee x Victoria. Dr. Wilds is now introducing genes for stem rust resistance into all of his more promising new smut and crown rust resistant varieties and strains.

At Statesville, N. C., the Lee x Bond selection (C.I. 3695) again is appearing promising. However, as a group the Lee x Victoria selections appear to be especially well adapted to conditions at Statesville. Last year, several of the selections averaged a few bushels better in yield than Lee. The selections of that cross, C.I. 3392 and 3393, are among the best that are being tested at Statesville. Several of the Lee x Victoria selections also are being grown in large increase plots.

In general, both crown and stem rusts were exceedingly scarce in the South and it will not be possible to eliminate rust-susceptible lines this year.

Mr. T. R. Stanton will leave June 27 for an extended trip in the oat-producing States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, Montana, Oregon, Washington, Idaho, Utah, Colorado, and Kansas to study experiments with oats and confer with officials of State agricultural experiment stations.

Dr. V. F. Tapke is at Ithaca, N. Y., taking notes on cooperative barley smut experiments.

Dr. G. A. Wiebe left Washington June 13 on an official trip through Ohio, Indiana, Michigan, Illinois, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Colorado, Wyoming, Idaho, and Utah to take notes on barley experiments and to confer with personnel of the Division and of the State agricultural experiment stations on cooperative barley research.

RECENT PUBLICATIONS

Dean C. Anderson. Report of the Yield Trials with Corn Hybrids and Varieties in Missouri in 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 17 pp. [Jan. 4, 1940.] [Mimeographed at the Missouri Agricultural Experiment Station.] (Cooperative investigations of the Department of Field Crops, Missouri Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

L. S. Evans. Bindweed Control Methods--Based on Results Obtained from the Bindweed Research Project at York, Nebr., 1936-39. Nebr. Agr. Col. Ext. Cir. 145, 2 pp. Lincoln, 1940. [Mimeographed.] (Cooperation between the University of Nebraska Agricultural College and the Division of Cereal Crops and Diseases.)

L. W. Kephart. The Farm Weed Problem in America. Imp. Bur. Pastures and Forage Crops (Herbage Pub. Ser.) Bul. 27: 28-37. January 1940.

Joe L. Robinson and Marcus S. Zuber. The 1939 Iowa Corn Yield Test. Iowa Agr. Expt. Sta. Bul. P2 (new series): [34]-112, fig. 1. February 1940. (The Iowa Corn Yield Test is conducted cooperatively by the Iowa Corn and Small Grain Growers' Association, the Farm Crops Subsection, Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

Glenn M. Smith. Indiana Sweet Corn Performance Tests, 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 8 pp. [January 1940.] [Mimeographed at the Purdue University Agricultural Experiment Station.] (Cooperative investigations of the Purdue University Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Roderick Sprague. Notes on Septoria Scalds of Vetch and Peas in Oregon. (Phytopath. Note) Phytopathology 30(6): 541-542, fig. 1. June 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

BUREAU ANNOUNCEMENTS

Dr. E. C. Auchter, Chief of the Bureau of Plant Industry, has annoounced the following appointments to become effective July 1, 1940:

Dr. O. C. Magistad as Assistant Chief of the Bureau in charge of soils work.

Dr. Oswald Schreiner as advisor to the Chief of the Bureau on soil problems.

Dr. D. M. Crooks as head of the Division of Drug and Related Plants.

Doctor Magistad received his undergraduate and graduate training in soils at the University of Wisconsin and holds a Ph. D. degree from that institution. He has had wide experience in soils investigations in the United States, Central America, and the Hawaiian Islands. Since 1938 he has been in charge of the U. S. Regional Salinity Laboratory at Riverside, Calif. The Chief of the Bureau believes that Doctor Magistad is especially well equipped to assist in the Bureau's administrative work concerned with plant and soils research.

Doctor Schreiner was trained at the University of Maryland, Johns Hopkins University, and the University of Wisconsin. He entered the Bureau of Soils of the Department of Agriculture in 1903. There he began studies on soil organic compounds and the toxic or benoficial effects of cortain of these on plants. In 1906 he was placed in charge of soil fertility investigations in the Department. Here he directed and conducted research on soil fertility, biochemistry of soils and plants, soil solutions, analytical methods, nutritional deficiency diseases of plants, and the allied items that enter into the broad field of soil productivity. Doctor Auchter points out that Doctor Schreiner's wide contact with soils and fertilizer problems in this and other countries especially fits him to render aid in the many soils problems confronting the Bureau.

Doctor Crooks is at present Head of the Department of Botany of the University of Arizona and Botanist of the Arizona Agricultural Experiment Station. He received a B. S. degree in biology from Ball Teachers College, Muncie, Ind., and the M. S. and Ph. D. degrees in botany from the University of Chicago. In view of the renewed interest in drug and medicinal plants and the desirability of having as many of these crops as possible grown in the Western Hemisphere, Doctor Auchter states that the Bureau is especially fortunate in having Doctor Crooks become associated with the work in this field to which he has already made important contributions.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF PERSONNEL
Washington, D. C.

June 7, 1940

P-89

MEMORANDUM TO CHIEFS OF BUREAUS AND OFFICES

Subject: Annual Encampments of Veterans' Organizations

In accordance with the usual custom employees of the Department affiliated with the American Legion, the United Spanish War Veterans, Veterans of Foreign Wars, may be granted annual leave or leave without pay for the purpose of attending the annual conventions of these Veterans' organizations, providing that such absence does not interfere with the performance of the necessary work of the Department.

The dates of the respective conventions are as follows:

American Legion, Boston, Mass.	- September 23-26, inclusive
United Spanish War Veterans Detroit, Michigan	- August 18-22, inclusive
Veterans of Foreign Wars Los Angeles, California	- August 25-30, inclusive

Roy F. Hendrickson
Director of Personnel

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1103 June 10, 1940.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

The following amendment to the Act covering the use of private vehicles for official travel was approved April 25, 1940:

AN ACT

To amend the provisions of law relating to the use of private vehicles for official travel in order to effect economy and better administration.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of February 14, 1931 (46 Stat. 1103), as amended by section 9 of the Act of March 3, 1933 (47 Stat. 1516; U.S.C., title 5, sec. 73a), entitled 'An Act to permit payments for the operation of motorcycles and automobiles used for necessary travel on official business, on a mileage basis in lieu of actual operating expenses', is further amended by striking out the words 'his own' wherever they appear therein and inserting in lieu thereof the words 'a privately owned'.

Heretofore, it has been necessary that an employee personally own an automobile in order to secure reimbursement on a mileage basis for its use on official business. Under the above amendment, it is not necessary that an employee personally own the automobile in order to establish a claim for reimbursement of expenses incurred on a mileage basis.

Very sincerely,

H. E. Allanson
Business Manager of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (June 7)

Temperatures in April were about the same as in April, 1939. The maximum temperature was 84°, the minimum 35°, and the average mean 66°.

The total precipitation was 7.88 inches, which is 5.83 inches more than in April 1939 and 4.31 inches more than the 30-year average for April. Only once before in the past 30 years has the precipitation for April exceeded that of this year, which was in 1918 when it was 7.91 inches.

The excessive rainfall, which was distributed throughout the month, prevented soil preparation and seeding to such an extent that the greater portion of the commercial rice crop had not been sown by the end of April.

Temperatures in May were slightly under those of May 1939. The maximum temperature was 89°, the minimum 54°, and the average mean 73°.

The total precipitation was 1.09 inches, or 2.29 inches less than in May 1939, and 3.79 inches less than the 30-year average for May. Only once before in the past 30 years was the precipitation for May less than that of this year; in 1928 it was 1.06 inches.

The extremely dry weather in May permitted seeding operations to proceed with few interruptions but resulted in poor germination. Many farmers have been forced to flush (irrigate) their fields one or more times before satisfactory stands were obtained. As a result there are many fields in which the rice plants vary greatly in age and size. Such fields are also apt to be grassy.

Rice seeding operations on the Station were completed May 17. Very little rain has fallen since seeding, making it necessary to flush most fields to insure germination.

Cotton seeding was completed just before the last heavy rains in April. The stands are satisfactory in most plots.

IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy) (June 15)

The past winter was unusually favorable for the survival of fall-sown grains. All of the winter wheats and the more hardy winter barleys came through without trace of winter-killing. Even fall-sown spring wheats, such as Mercury, Ceres, Hope, etc., survived with a stand of approximately 50 percent. Several volunteer plants of Fulghum (C. I. 708) also survived the winter, indicating that the more hardy fall-sown winter oats should have survived the winter of 1939-40 at Ames with little winter-killing. This unusual survival of fall-sown grains apparently was due to snow cover during the periods of extreme low temperatures. The minimum temperatures, at Ames, for December, January, and February were -3, -22, and -14° F., respectively.

Small grains appear to be about normal in development. Fields of oats and barley are of uneven height, with many patches of stunted and yellowed plants. The yellowing and stunting of oats appears very similar to that observed in the spring of 1938. Both seasons were cool but 1938 was abnormally

wet, while 1940 has been slightly dry. Leaf rust of wheat is very abundant at Ames and will cause considerable damage in the experimental plots. Observations in farmers' fields, however, now indicate a lighter than usual infection in central and southern Iowa. Stem rust was first observed at Ames on June 5. It is now well distributed throughout the experimental plots, but, except for a few very susceptible varieties, its severity does not average more than a trace minus. Powdery mildew is unusually heavy on both winter and spring barleys. There is also considerable infection on the more susceptible varieties of winter wheat. The loose smuts of wheat and barley are more prevalent than usual. Halo-blight on oats is unusually severe and is causing some damage on susceptible varieties. Neither crown nor stem rust of oats has been observed, except as a result of artificial inoculation. Satisfactory infection with both of these rusts in the oat breeding nursery has been obtained as a result of hypodermic inoculation of susceptible rust spreaders.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (June 17)

Weather conditions during the first half of June have been generally favorable for small grains. The rainfall at University Farm during the first week in June was 4.77 inches, with about normal temperatures. There was not so much moisture in other parts of the State, although small grains are reported to be in good condition.

Winter wheat is especially good, the crop statistician of Minnesota estimating a 20-bushel average yield for the State. Winter wheat is in the heading stage.

Both leaf and stem rust from natural infection were found in the spring wheat plots at University Farm today. The spring wheat varieties are in the boot stage.

The maximum temperature during the month was 91° recorded on June 2, and the minimum 48°, on June 11.

Corn, which had been retarded because of cold weather, is now making good growth. It is reported that considerable corn had to be replanted in Minnesota this year.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (June 10)

Following the period of excessive rainfall (May 17 to 28) the weather conditions have been clear and favorable for harvest of small grains for the past 10 days. As no harvesting operations were possible prior to this, all three small grain crops were ripe and ready to harvest at about the same time. A large crew of men was placed in the nursery and all but a few late varieties are now harvested and stored. A rain of 1.35 inches yesterday will delay final harvest operations a few days.

Although a very large amount of inoculum of stem rust was built up in this area, it now seems that much of the wheat has escaped serious injury. Some late fields are testing as low as 52 pounds per bushel, but much of it is weighing 60 pounds or close to it. A wide range of test weights is expected in the experimental plots and nursery, as such late-maturing, susceptible varieties as Fulcaster and Clarkan were so severely damaged that they were breaking over before harvest. Early varieties such as Early Blackhull and Red May, as well as Kawvale and Kawvale hybrid strains which have some resistance to stem rust, will produce good quality grain.

The stem rust epidemic provided favorable conditions for eliminating susceptible strains from hybrid populations. Two crosses are of especial promise for this area because of fine stem rust resistance and fine plant type. These are (Clarkan x Hard Federation) x Hope-Mediterranean and (Mediterranean 5933-23 x Hard Federation) x Hope-Mediterranean. The fifth generation of this cross will be grown next season.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (June 17)

The weather of the first half of June was similar to that of May, being below normal in rainfall and without extremely hot temperatures. Sorghum planting is well under way but wheat harvest has not started in this district.

The first date-variety seeding of broomcorn (June 1) emerged to good stands and the second seeding was made on schedule, June 15. The sorghum varietal experiment seeded June 7 emerged to satisfactory stands in six days.

The maximum temperature for the first half of June was 95° on the 6th and 8th and the minimum, 50° on the 11th. A precipitation of 1.06 inches was recorded from four rains.

Messrs. Scott and Martin of the Budget Bureau visited the Station on June 14 as scheduled.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (June 20)

Owing to continued dry weather during May and early June the small grains at Lincoln, especially the winter wheat, are very spotted. The varietal plots of winter wheat growing on cropped land are very irregular. Some plots are nearly failures while others could make as much as 20 bushels per acre. While there are varietal differences, the variability due to place is much the greater. The plots of spring grains are in better condition and the rain falling today will help them a great deal. A few oat varieties will have straw so short that harvesting will be difficult.

The winter wheat nursery, on fallow, is much better than the plots, but drought and the 100° temperature of the first of the week have affected this material. The early varieties are turning and will be ready to cut in a few days. The oat and barley nurseries are in poorer shape and some of the early varieties are ready to cut or have been cut. In many cases the straw is very short. As yet chinch bugs have done little damage.

Good bunt infection is showing in the bunt nursery and a fairly good stem rust infection is developing in the rust nursery.

At North Platte, the nurseries of winter wheat and barley are in fairly good shape, but the spring grains plots have been plowed up. At Alliance, the spring grains are reported as being in better condition than the winter wheat.

A most welcome rain started falling this morning and approximately an inch of moisture has been received. This moisture, together with the cooler temperatures, will be a great help to all crops.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 17)

Dry weather prevailed here during the first half of June. The total precipitation recorded during this period was 0.77 inch. Warm south winds during the past week have promoted rapid drying of the soil.

Cereal crops are beginning to show the effect of shortage of moisture. Early varieties of wheat, oats, and barley are heading at low heights. Most of the cereal crops are in the critical pre-heading stage and because of their earlier good development under unusually favorable moisture conditions will be making especially heavy demands on soil moisture during the next two or three weeks. Yields are likely to be influenced largely by the amount of precipitation during the next few weeks.

The maximum temperature was 91° on the 13th and the minimum 42° on the 9th.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (June 15)

Comparatively cool weather prevailed during the first half of June, except on the 13th when a temperature of 95° accompanied a hot south wind. The minimum was 38° on the 7th and 15th. The precipitation so far this month was but 0.58 inch. The total for 1940 up to this time is still more than an inch above normal, however.

Cereal crops begin to show the need of rain; some of the lower leaves are turning yellow. Good local rains are reported from nearby and distant parts of the State.

Winter wheat, winter rye, and early barley varieties are beginning to head and early wheat and oats should begin heading next week. In the uniform barley nursery the first variety to show awns was C. I. 6566 on June 5, which was a week earlier than for Spartan barley. Straw is going to be somewhat short this year but with good rains soon good yields can yet be obtained.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (June 15)

During the first half of June there has been approximately 2.5 inches precipitation at Bozeman and Moccasin and 2.1 inches at Havre and spring cereals and ranges are making excellent growth.

At Bozeman, field mice destroyed more than half the plants in the winter wheat nurseries and plots before the snow melted. The remaining stand was so spotted and irregular that it will be impossible to get comparable yield data on the varieties. At Moccasin, spring stands of winter wheat in the nurseries are so irregular that it is questionable whether comparable yield data can be obtained. Stands were rather uniform in the fall and apparently the lack of spring stand was due to winter-killing, jack rabbits, and soil blowing.

Commercial fields of winter wheat in the Judith Basin and in the Great Falls area mostly have a very poor appearance because of weeds and uneveness of growth. Almost all fields are completely overrun with several species of mustard; in most places it is as tall as the wheat. In many fields large areas are heading out about 14 inches tall, with smaller irregular spots 24 to 30 inches tall. No root rot is apparent and the cause of the stunting is obscure. The farmers interviewed reported fall stands good, so the irregularity is not due to spring emergence. The most logical explanation seems to be severe injury by subzero temperatures after growth had started in the spring.

Spring grains at both Moccasin and Bozeman have near perfect stands and are making excellent growth. Seedings of yield nurseries and plots were completed at Moccasin on May 5 and at Bozeman, May 11.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (June 16)

The current crop has provided some unusual opportunities for making selections. Notable among these are crown- and stem-rust resistant selections from bulked hybrid populations involving both Kanota and California Red oat types; scald resistant barley selections; and stem rust resistant selections in backcrossed wheat populations. Extensive elimination of disease-susceptible types from other experimental material was also facilitated.

Stem rust developed about as indicated last month, except that in all sections in the northern half of the State, density of stand and air drainage seem to have influenced rust development more than time of maturity of the variety. Thus, our late varieties actually rusted but little more than early types like Poso and White Federation. It is generally conceded that loss from stem rust on wheat in California this year is greater than in any season when the present collection of varieties have been prominent (25 years).

In the cooperative work with the Bureau of Entomology and Plant Quarantine an experimental field of Big Club 38 (a composite of lines carrying one or both of the Dawson resistance factors) is showing 2 percent plant infestation of hessian fly as against 55 percent for Big Club. This difference conforms to expectations, but the low level of infestation in the susceptible variety suggests trouble in making accurate classifications in current breeding and genetic material.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (June 15)

The mean maximum and mean minimum temperatures for May were 93.1 and 58.8, respectively. The mean temperature was over 4° higher than normal. The maximum temperature of 99° occurred on May 31. A precipitation of 0.52 inch was recorded. The highest temperature so far in June was 108°.

With the exception of a few late foreign introductions of wheat at Tucson, the harvesting and threshing of all the varieties has been completed here and at Mesa. Seed is now being prepared for the sorghum nursery. This will be planted here early in July.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 July 10, 1940 No. 10

Personnel (June 26 - July 10) and Field Station (June 16 - 30)

PERSONNEL ITEMS

RECENT PUBLICATIONS

Charles E. Chambliss. The Botany and History of Zizania aquatica L. ("wild rice"). Wash. Acad. Sci. Jour. 30(5): 185-205, figs. 1-6. May 15, 1940. (Address of the retiring president of the Washington Academy of Sciences, delivered on January 18, 1940.)

F. A. Coffman and T. R. Stanton. Dormancy in Fatuoid and Normal Oat Kernels. Amer. Soc. Agron. Jour. 32(6): 459-466, fig. 1. June 1940.

P. E. Hoppe. Relative Prevalence and Geographic Distribution of Various Ear Rot Fungi in the 1939 Corn Crop. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 24(11): 210-213. June 15, 1940. (Survey conducted by the Grain and Seed Division, Agricultural Marketing Service, U. S. Department of Agriculture, the Wisconsin Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

Ralph O. Snelling and Irwin R. Hoener. Relationships between Some Measures of Maturity in Maize. Amer. Soc. Agron. Jour. 32(6): 451-454. June 1940. (Cooperative investigations between the Illinois Agricultural Experiment Station, Illinois Natural History Survey, Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture.)

Roderick Sprague and A. G. Johnson. Selenophoma on Grasses. (Note) Mycologia 32(3): 415. May-June 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (July 2)

Weather conditions have continued favorable for small grains during the past two weeks. Winter wheat gives promise of an excellent crop. It is in the milk stage at present. Leaf and stem rust are present in a number of fields examined south and west of the Twin Cities.

There is a heavy epidemic of leaf and stem rust in the winter wheat nursery at University Farm. A number of the Minturki backcrosses are showing resistance to leaf rust, but stem rust has not attacked them as yet.

Spring wheat, oats, and barley are fully headed. Leaf and stem rust are present in the plots and nursery. Thatcher wheat continues to show resistance to stem rust in the fields.

June has been a cool, wet month. A precipitation of 3.35 inches during the last two weeks of the month makes the total June rainfall 8.12 inches. The normal is 4.15 inches. The temperatures recorded were: Maximum 92° on the 17th, minimum 45° on the 19th. Minnesota, in general, is in fine shape, although the northern end of the Red River Valley needs more moisture.

Small grains are about a week to 10 days later than normal. Corn has made slow growth, probably due to the cool temperatures at night.

Messrs. J. Allen Clark and A. C. Dillman were recent visitors at the station.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. [illegible] Atkins) (June 25)

Following a week of clear weather the first week in June, when most of the cereal experiments were harvested, frequent rains have made further harvest very difficult and prevented threshing in the community. The experimental grain on the Station has finally been harvested but increase fields of Fultex oats are still uncut. Grain on farms is about 75 percent harvested and that remaining is damaged by bleaching, staining, and lodging. Some damage to grain in the shock has occurred.

The precipitation so far this month is 3.73 inches, a measurable amount of rain having been recorded on 13 days since June 8. Cloudy or partly cloudy weather has been the rule.

The writer has just returned from a trip to Amarillo and the Panhandle of Texas. In general, the crop in the Panhandle section is the poorest seen in recent years. The crop is very late in maturing and only a very small part of the crop is yet ready for harvest. Some sections and some fields will not be harvested for two weeks yet. Harvest in the rolling plains area below the Panhandle section is just about completed, having been delayed by showers. In general, the crop in this section is also poor.

(July 3)

Except for the first week of the month, the weather in June has been very unfavorable for harvesting and threshing operations. The total rainfall for the month was 4.91 inches, which is 2.03 inches above normal. Precipitation was recorded on 14 days of the month and has been so distributed that threshing of small grains has been almost impossible and much of the grain left for combine harvesting is still in the field. The mean monthly temperature was 76.6°, which is 3.6° below normal.

Harvesting of experimental grain was finally completed with difficulty. On June 27 the increase field of New Nortex oats was threshed, yielding 61 bushels per acre. Fultex oats were combined with great difficulty because of wet fields and considerable loss of grain in low areas of the field. No yields have been determined for this variety. Threshing of varietal tests was started on June 28, but after threshing a number of miscellaneous plots and two varieties rain again stopped operations.

Grains in shocks is damaged to some extent and all grain left standing for the combine is lodged and severely damaged. Oats are lodged so badly that heavy losses will result.

Threshing of nursery material was started this week because of the delay in field work.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 1)

The last half of June was drier than the first half and so far this year has a start for being a very dry season. Both May and June were short in rainfall and these are the two months when rains may be expected.

Sorghums and broomcorn planted before June 26 have emerged to satisfactory stands. The first seeding of broomcorn and sorghum varieties have been thinned to comparable stands and cultivated.

June 26 was the most drying day on record at this Station; the wind averaged 18 miles per hour, the maximum temperature was 104°, and the evaporation was 0.768 inch.

For the last half of June the maximum temperature was 104° on the 26th and 27th, and the minimum 53° on the 24th; the precipitation was 0.20 inch. The precipitation for the month was 1.26 inches, while the 26-year average for June is 3.07 inches.

INDIANA

AGRICULTURAL EXPERIMENT STATION, LA FAYETTE (Corn Breeding, A. M. Brunson) (July 1)

A precipitation totaling 4.14 inches for the month was recorded on 15 days in June. The mean monthly temperature was 73°. The highest temperature was 92° on the 6th and the lowest 45° on the 21st. A killing frost was reported in low spots in northern Indiana on the morning of June 21.

A cool, wet spring has made all crops later than usual. Wet weather delayed corn planting somewhat and subsequent cold weather made germination and early growth very slow. More than average stand reduction from seedling blight was experienced, particularly with some seed stocks. Cultivation was retarded and weeds were a problem, but most fields have now been cleaned up satisfactorily.

Wheat is a week to 10 days later than last year. Early varieties are turning at La Fayette and will be ready to bind the last of this week. Loose smut is unusually severe. Stem rust infection is general and its damage is still to be determined. There was very little early infection of leaf rust but recent development has been rapid. Oats promise bumper yields, and pastures and meadows are considerably above average.

Up until three weeks ago a heavy infestation of chinch bugs was in prospect, particularly in some areas. Recent cold weather and heavy rains have been very unfavorable for their development and present indications are for comparatively little injury to corn at La Fayette.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (June 22)

Conditions during June have been favorable for the development of cereal crops in most parts of Kansas. Rainfall has been near or slightly below normal and temperatures have not been abnormally high. Winter wheat has made very satisfactory progress in most parts of the State and harvest now is under way in many localities. The maturity of the crop is very spotted, however, and many fields of late wheat can be found in nearly all sections. There is a large area of extremely late wheat in south-central counties. Large portions of such fields were found to be in the boot to flowering stages on June 8--fully three weeks behind normal.

Stem rust made its appearance in the State late in May and has gradually increased during June. Most of the extremely late fields will be destroyed or severely damaged by stem rust provided they escape heat damage. Severe damage in late but otherwise good fields already has been reported from several widely scattered localities as far north as the central part of the State.

On a trip through south-central, southeastern, and east-central counties from June 8 to 12, it was noted that the acreage of both oats and flax is unusually large this year. Most oat fields were fair to good, while flax looked excellent. The unusually large acreage of oats and flax in southeastern Kansas is the result of plowing up of much winter wheat in that section owing to poor stands and winter injury.

Loose smut again proved to be the most abundant disease of winter wheat in Kansas. The disease still is increasing and was present in every field visited this year. Some fields had as much as 20 percent and infections of 2 to 5 percent were common. All varieties except Kawvale seem to be infected, although loose smut was most abundant in Chiefkan, Clarkan, Early Blackhull, and Turkey. Other wheat diseases that are unusually abundant this year are [illegible] glume rot and speckled leaf blotch (Septoria tritici). Kawvale seems t[illegible]rticularly susceptible to that disease.

Smut of oats is abundant in some localities in the extreme eastern part of the State. Infections of 25 percent have been noted and 5 percent of smutted panicles are frequently encountered. Considerable wilt was noted in experimental flax plots at Columbus and Thayer, Kans., although it was not seen in commercial fields.

Rust reading in the spring oat and winter wheat rust nurseries at Manhattan has been completed. Excellent notes were obtained and many lines resistant to both leaf and stem rust have been isolated. Harvest has started in the winter wheat nursery.

Recent Station visitors have been Drs. K. S. Quisenberry, S. C. Salmon, and B. B. Bayles, and Mr. Otto E. Rauchschwalbe. Mr. F. A. Coffman is expected to arrive tomorrow to spend some time going over cooperative oat experiments.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 2)

Crops have made fairly good development during the last half of June in spite of rather severe moisture deficiency. Heading of wheat, oats, and barley is nearly complete and most flax varieties in plots and regional nursery are in full bloom.

The total precipitation during the last half of June was only 1.18 inches and for the entire month only 1.95 inches, which is about 1-1/4 inches below average for June.

Leaf rust was first observed on wheat on June 19 and has shown only moderate development since that date although it can be found readily now. Stem rust pustules were first observed on June 29. During the past few days there has been a general outbreak of small stem rust pustules on susceptible varieties. At this date stem rust greatly predominates over leaf rust.

Mr. O. R. Matthews was a recent visitor. Mr. J. Allen Clark is here today inspecting the wheat plots and nurseries.

Total precipitation for the first six months of 1940 was 8.80 inches, which is about one-half inch more than the average for the past 26 years. Crops in this locality are in fair condition but need more moisture to maintain satisfactory growth.

The maximum temperature was 91° and the minimum 42°.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 1)

The precipitation for June was only 1.53 inches, which is slightly less than half normal. Owing to the high precipitation for April the total so far for 1940 is not far from normal. Cool weather during the latter part of the month has kept down the loss of water from the plants and soil and cereal crops are still in fair condition at the Substation and vicinity. A good rain in the near future is needed to insure a crop.

Nursery varieties of wheat and barley are fully headed, also early oats. Heading is nearly completed in field plots of wheat and oats and barley varieties are headed. Straw is somewhat shorter than last year.

Bunt is appearing in the smut nursery, apparently a good infection. The first few pustules of stem rust were observed today in Supreme wheat. No leaf rust has been seen yet.

First heading notes are nearly completed in all experiments. Flax varieties are in blossom and are unusually promising, being sown on fall-plowed sod where crested wheatgrass grew for the past 16 years.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 1)

The precipitation at Fargo during June totalled 2.42 inches, or 1.22 inches below normal. Owing to the absence of high temperatures, this shortage is not so serious as it might be. The mean June temperature was 61°, or 3.6° below normal.

Although seeding was later than usual, and the crop appeared to be developing slowly early in the season, the heading dates are about average, or earlier. All yield nursery and plots are now fully headed.

Farm fields on cropped ground show the lack of reserve moisture, and some fields show most of the heads partly blasted. In general, the condition is very spotted, depending on previous tillage and cropping.

Stem rust has been easy to find for several days, and a new crop of pustules appeared today. Although tillering was rather heavy, lack of heavy rains has prevented the development of succulent growth.

IDAHO

AGRICULTURAL EXPERIMENT STATION, MOSCOW (Stripe Rust, W. M. Bever) (June 27)

Nezperce, Lewis, and Idaho counties in Idaho were visited with Dr. C. S. Holton on June 13. Cercosporella foot rot (Cercosporella herpotrichoides) was spotted and severe in several fields. On the Lewiston Flats, where foot rot was severe in 1934, only slight to moderate damage was observed. There was nearly 100 percent prevalence in some fields; however, dry weather arrived too soon for a serious epidemic. There was some lodging of the wheat due to cercosporella. In Idaho County, in the vicinity of Cottonwood, very little foot rot was found. In Lewis County, in the vicinity of Nezperce, several fields of Rex wheat were severely damaged by foot rot infection. Some fields showed 30 to 40 percent less. There was approximately 100 percent prevalence, with culms badly tangled, off-color, and with reduced head size.

Foot rot is scattered in the Palouse area. Only small areas of infection occur in any one field. The rod-row nursery varietal test in the Agronomy plots at Moscow has been severely damaged by cercosporella. There is some doubt as to whether it will be worth harvesting.

Mr. C. A. Suneson and Dr. C. S. Holton report a severe epidemic on the High Prairie section in Washington.

For the third consecutive year, stripe rust has been extremely severe in the Pullman Unit of the Soil Conservation Grass Nurseries. Susceptible grass species were heavily infected, many susceptible species failing to head because of rust infection.

In both the Pullman and Moscow wheat varietal nurseries stripe rust is severe on susceptible early types. Very little stripe rust has been observed in commercial wheat fields except in the low areas within a given field where moderate to severe infection may be observed.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (July 1)

With the exception of a rain on June 5, hot, dry weather has continued throughout the month. Maximum temperatures for June exceed any taken since records have been recorded on the experiment farm. On June 17 and 19 a maximum of 100° was recorded. The mean maximum for the month was 86.9°. The precipitation for the month totaled 0.85 inch.

As a result of the drought during May and June, winter wheat has continued to look worse. Considerable winter wheat is approaching maturity; the estimated yields are from 10 to 25 bushels per acre. Early seeded spring grains grown on the irrigated lands show promise of producing good yields. Corn has so far made exceptional growth, while other crops have suffered more or less owing to the excessive clear, hot weather.

The writer and Mr. D. C. Tingey attended a wheat conference held at Pullman, Wash., from June 24 to 26.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 July 25, 1940 No. 11

Personnel (July 11 - 25) and Field Station (July 1 - 15)

PERSONNEL ITEMS

Dr. B. B. Bayles returned to Washington on July 22 from a short trip to State College, Pa., and Ithaca, N. Y., where he conferred with officials of the State agricultural experiment stations on cooperative wheat investigations.

Dr. H. B. Humphrey left Washington early Monday morning, July 22, to inspect cooperative uniform rust observation nurseries at Blacksburg, Chilhowie, Jackson's Ferry, and Elk Creek, Virginia, and Swannanoa, North Carolina. At all these nurseries except one there was from a little to much stem rust and leaf rust of wheat and crown rust and stem rust of oats. At Swannanoa there was no rust except on volunteer wheat and oats. Dr. Humphrey returned to Washington July 25.

RECENT PUBLICATIONS

J. G. O'Mara. Cytogenetic Studies on Triticale. I. A Method for Determining the Effects of Individual Secale Chromosomes on Triticum. Genetics 25(4): 401-408, pl. July 1940. (These studies are a part of the program supported by funds obtained under Bankhead-Jones Project SRF-2-5, "Comparative Genetics and Cytology of Polyploidy Series in Triticum," Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and Missouri Agricultural Experiment Station, cooperating.)

K. S. Quisenberry, O. J. Webster, and T. A. Kiesselbach. Varieties of Winter Wheat in Nebraska. Nebr. Agr. Expt. Sta. Bul. 326, 28 pp., 5 figs. May 1940. (Cooperation between the Divisions of Cereal Crops and Diseases and Dry Land Agriculture and the Nebraska Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1120 July 9, 1940

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

Congress has provided an emergency appropriation to conduct rubber investigations with a view to the development of rubber production in the Western Hemisphere. This emergency appropriation has been made to the Bureau of Plant Industry for expenditure.

Dr. E. W. Brandes, Head Pathologist in charge of our Division of Sugar Plant Investigations, has been placed in charge of the emergency appropriation for rubber investigations. He will continue in charge of the Division of Sugar Plant Investigations.

The Rubber Investigations Project will be headquartered in Room No. 340-1 West Wing, Administration Building.

Very sincerely,

M. A. McCall
Acting Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1123 July 18, 1940

MEMORANDUM FOR HEADS OF DIVISIONS

The Secretary of Agriculture has formally approved a recommendation of the Department Committee on Plant Names, endorsed by the chiefs of the Bureau of Plant Industry, Forest Service, and Soil Conservation Service, to put the Department, botanically speaking, under the International Rules of Nomenclature. Therefore, from now on these rules will be official for the Bureau of Plant Industry publications, reports, and correspondence involving scientific plant names.

The systematic botany investigations of the Bureau of Plant Industry, so far as flowering plants are concerned, are now centered in the Division of Plant Exploration and Introduction, and I am asking that Division to cooperate with the other Divisions of the Bureau to the extent of checking lists of

scientific and common plant names in manuscripts or furnishing such data on request, so that this Bureau can conform in every detail to this new ruling. I am also asking the Division of Mycology and Disease Survey to extend to the other Divisions of the Bureau the same kind of service with regard to the nomenclature of fungi.

Sincerely yours,

M. A. McCall
Acting Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (July 17)

Harvesting of winter wheat is in progress in southern Minnesota. There is an excellent crop with little if any damage from stem and leaf rust. The wheat is lodged on the lower heads necessitating cutting of the grain in one direction.

Spring wheat is developing rapidly and will be ready for harvest in about two weeks. Leaf and stem rust are developing on susceptible varieties, such as Marquis and Ceres, and they will be seriously injured. The crops show the effect of drought beginning about 50 miles west of the Twin Cities. There will be a fair yield of grain, which, with favorable weather conditions, should be of good quality.

The weather has continued cool, with scattered rains. At University Farm, there has been 0.58 inch of rainfall during the first half of July. The maximum temperature recorded was 92° on July 9 and the minimum, 56° on July 11.

Recent visitors at the Station were Messrs. J. A. Clark, A. C. Dillman, S. C. Salmon, T. R. Stanton, and G. A. Wiebe.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 16)

The early summer drought was broken on July 1 by a 2-inch rainfall accompanied by some hail, driven by a hard wind. The moisture was appreciated but the storm damaged sorghum crops which had just emerged. Seedings which had been in the ground about a week were damaged worse than those just made or those well established. The June drought had made deep seeding necessary and the loose soil was washed over the young seedlings. Stands from seedings between June 22 and 28 will be ragged and poor. Material sown June 29 was damaged little if any but seedings made on July 1 were washed out or under.

Thinning to stands and cultivating is in progress. A late planting of short-season sorghums on July 10 emerged to good stands in four days.

The maximum temperature for the first half of July was 104° on the 10th and the minimum, 56° on July 4th. The precipitation for the period was 2.25 inches of which 2.06 inches occurred in less than an hour and a half on July first.

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (July 18)

The last of the small-grain threshing was completed yesterday. Fairly satisfactory yields of wheat were obtained in view of the rather dark outlook last fall. Only about 5 percent of the wheat had emerged at the end of December preceding a heavy snow. Examination of the seed in the soil under the snow on January 6 revealed that it was still lying in the dry dust. The snow melted slowly and full emergence occurred on March 18. Natural vernalization occurred during the winter and spring. Rainfall was below normal for May and June. The following average yields were obtained for the 17 wheat varieties grown on 4 fiftieth-acre plots, 2 on cropped land and 2 on fallow.

Variety	C. I. No.	Yield (Bu. per acre)	Rank
Oro x Tenmarq	11672	17.8	1
Do	11673	17.8	1
Chiefkan	11754	17.4	2
Early Blackhull	8856	17.3	3
Early Blackhull hybrid	11846	16.7	4
Kawvale x Tenmarq	11669	16.3	5
Kanred x Marquis	11589	15.8	6
Tenmarq	6936	15.1	7
Blackhull selection H.C. 369	----	14.6	8
Blackhull	6251	14.5	9
Kawvale x Tenmarq	11750	14.2	10
Nebred	10094	14.0	11
Oro	8220	13.1	12
Kanred	5146	13.1	12
Turkey	1558	12.4	13
Cheyenne	8885	12.1	14
Kharkof	1442	11.9	15

Artificial vernalization of 4 varieties of winter wheat was begun on January 6 and the seed was sown on March 6 in comparison with untreated seed and with Reward spring wheat. The following yields were obtained:

Variety	Acre yield (bu.) Vernalized	Not vernalized
Early Blackhull	18.5	14.2
Kanred	11.2	3.3
Quivira	16.5	----
Oro	11.2	----
Reward (spring)	13.7	----

Wheat in western Kansas made a remarkable recovery from what appeared to be a very dark prospect at the end of 1939. Although many fields had to be abandoned because of thin stands and weed growth, enough others produced above expectation so that the Kansas crop greatly exceeded the April prediction.

A 4-inch rain fell on July 3 during a 24-hour period with scarcely any run-off. It was one of the best rains in years. Row crops have responded to this rain most favorably. The earliest plantings of the early-maturing varieties are beginning to head.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 16)

Extremely dry weather during the first half of July has greatly reduced prospective crop yields in this locality. The total precipitation during this period was only 0.38 inch.

Early varieties of oats and barley are nearly ripe and probably will be harvested before the end of this week. Wheat varieties in plots and nursery rows are turning rapidly and probably most varieties will be ready to harvest next week. Early flax also is through blooming and turning color.

A secondary outbreak of stem rust on susceptible varieties of wheat and barley occurred July 15. Infection is not heavy, however, and little rust damage may be expected.

Wheat on farms in this locality is ripening prematurely so that most of the grain will be shriveled and yields will be low.

Visitors during this period included Mr. J. A. Clark, Mr. A. C. Dillman, and Dr. S. C. Salmon.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 16)

Dry weather has continued so far in July with only 0.09 inch of precipitation. The drought has been relieved somewhat by cool weather on several days but a maximum temperature of 101° on the 13th hastened the ripening of cereal crops.

Early varieties of barley and oats will be ripe the latter part of this week and some of the rotation plots have already been harvested. Some fields of oats and barley in the vicinity are being harvested for hay. The general harvest will be on next week.

In general, the cereal crops will give low yields in this region except where local rains have assured a good crop. The cereal nursery looks fairly good despite the lack of rainfall. The field plots were seeded somewhat later and probably will yield less. Varietal field plots on fallow look much better than those on cornland.

Only a trace of stem rust is present on susceptible wheat and barley varieties. Bunt is plentiful in the bunt nursery and considerable loose smut is present in plots and nursery. There is a trace of the black chaff disease. Green bugs are numerous on wheat plots and to some extent on other cereals.

Official visitors in July included Dr. S. C. Salmon on July 8, Mr. Glenn S. Smith July 5 to 8, and Dr. Roderick Sprague July 12 to 15. Dr. Sprague made estimates of root rot infection in varietal field plots. All varietal field plots of wheat showed some infection although not so much as certain rotation plots.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
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Vol. 32 Aug. 10, 1940 No. 12

Personnel (July 26-Aug. 10) and Field Station (July 16-31)

PERSONNEL ITEMS

Dr. John H. Martin left Washington on August 9 to visit the sorghum-producing States of Nebraska, Kansas, Oklahoma, Texas, New Mexico, Arizona, Colorado, Wyoming, South Dakota, and Illinois, where he will conduct breeding experiments with sorghum, observe sorghum growing conditions, and confer with Division personnel and officials of cooperating State agricultural experiment stations regarding sorghum research.

RECENT PUBLICATIONS

T. A. Kiesselbach, O. J. Webster, and K. S. Quisenberry. Varieties of Oats, Barley, and Spring Wheat for Nebraska. Nebr. Agr. Expt. Sta. 328, 28 pp., 6 figs. June 1940. (Cooperation between the Divisions of Cereal Crops and Diseases and Dry Land Agriculture, Bureau of Plant Industry, and the Nebraska Agricultural Experiment Station.)

T. R. Stanton. Maintaining Identity and Pure Seed of Southern Oat Varieties. U. S. Dept. Agr. Cir. 562, 20 pp., 15 figs. June 1940.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1129 August 6, 1940

MEMORANDUM FOR HEADS OF DIVISIONS$

Gentlemen:

I enclose copy of a memorandum from the Director of Personnel, dated July 25, on the subject "Department Recognition of Exceptional Safe-Driving Records."

It will be appreciated if you will review the situation obtaining in your Division, and submit reports to me covering any employees you may have who have records of 50,000 and 100,000 miles of driving a Government vehicle without figuring in an accident of any kind. We shall be glad to submit these cases to the Secretary for recognition. A statement fully outlining the character of the work involved should be included.

Very sincerely,

M. A. McCall
Acting Chief of Bureau.

Enclosure.

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of Personnel
Washington

P-100 July 25, 1940

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

Subject: Department Recognition of Exceptional Safe-Driving Records.

Several reports have been received showing that drivers of Government vehicles have operated them without accident for various lengths of time, some for more than 100,000 miles. It has been customary in the past in some Bureaus for the Chief to issue a letter of commendation or a certificate of merit and in some exceptional cases the Secretary has written the Chief of the Bureau, commending the organization and individuals on such records.

In the development of any safety program it is just as necessary to recognize the good work done by individuals and groups as it is to point out the mistakes of others. It has therefore been decided to institute a Departmental procedure in recognizing the holders of exceptional driver's records; but first we would like to learn just how many Bureau employees have achieved outstanding records.

If each Bureau and Office will forward to the Office of Personnel lists of employees who have records of 50,000 and 100,000 miles of driving a government vehicle without figuring in an accident of any kind, proper recognition will be awarded. Recognition of a good record by the Secretary should not supplant Bureau actions, but should emphasize and confirm them.

Roy F. Hendrickson
Director of Personnel.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (Aug. 3)

Dry, hot weather occurred during the last half of July, which ripened small grains prematurely. Ripening of the crops prior to this period had been slow owing to cool temperatures. Small-grain harvest, with the exception of that of the durum wheats, has been completed. At University Farm, however, the hot period was followed by rain and cooler weather which has delayed the harvesting of the spaced-planted material in the breeding nurseries.

An unusually heavy epidemic of leaf and stem rust developed in both the spring and winter wheat nurseries.

Threshing of winter wheat and rye has been begun in the southern part of the State, some exceptionally good yields being reported.

Corn is in the tasseling stage and looks exceptionally well.

The rainfall for the month was 2.74 inches and the maximum temperature 100°, recorded on July 22. The humidity has been very high during the past week.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Aug. 1)

Weather conditions in July continued unfavorable for harvesting and threshing operations in this section. Total rainfall for the month was 4.00 inches compared to a 26-year average of 2.80 inches. The precipitation was so distributed that it greatly hampered threshing operations. Custom threshing was completed this week and combine harvesting is also just being finished. Loss of grain, especially in the case of oats, in fields left for combines was very great. All grain threshed since the rains of June and July is bleached, sprouted, and of inferior quality. Wheat at the elevators ranged from 45 to 60 pounds per bushel, depending upon the amount of rust damage, sprouting, bleaching, etc.

Temperatures in July continued very much below normal. In general, this has been one of the coolest summers on record. Mean temperature for the month was 80.9°, or almost 4° below normal. No maximum temperature above 95° was recorded until near the end of the month when a maximum of 98° was recorded. Night temperatures have been in the 60's or low 70's all summer.

Owing to the rainy weather, experimental threshing was delayed this year. All threshing has now been completed and yields are being calculated. Experimental nursery grain, which was under cover during the wet weather, is of excellent quality. Even wheat that appeared severely damaged by rust, was shriveled very little. Nursery wheat yields ranged from 20 to 45 bushels per acre, oats from 50 to more than 100 bushels, fall barley from 50 to 90 bushels, spring barley from 40 to 70 bushels, and spring wheat from 20 to 60 bushels per acre. The high yield of the spring-sown crops was, of course, due to the favorable rains and cool weather in May.

Yields of winter wheat varieties grown in plots at Texas Substation No. 6, Denton, Tex., 1940.

Variety	Number C.I.	Number T.S.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Kawvale x Tennarq, 35-34-117	11956	------	31.2	60.5
Chiefkan	11754	23276	29.8	61.0
Kawvale x Tennarq, 35-34-96	11953	------	29.0	58.0
Early Blackhull	8856	15838	28.8	61.0
Kawvale x Tennarq	11669	26971	27.7	60.0
Oro x Tennarq	11673	24951	27.4	60.0
Blackhull	6251	7172	26.7	59.0
Martin x Tennarq^3, 50-34-128	11823	------	25.2	55.0
Quivira	8886	15833	24.8	60.0
Kawvale	8180	12577	24.7	58.5
Martin x Tennarq^3, 50-33-63	11805	------	24.5	56.5
Tennarq	6936	12578	24.0	55.0
Kanred	5146	11763	23.0	56.0
Campbell Mediterranean	------	23250	20.8	55.0
Red May selection	------	7250-1	19.9	54.5
Mediterranean selection	10086	3015-81	19.6	55.0
Do	11525	5933-23	18.6	58.0
Kharkof	1442	16830	18.6	55.0
Clarkan	8858	20400	18.2	56.6
Denton	8265	9236	15.6	52.0
Fulcaster	6271	7082	13.8	52.0

Yields of fall-sown and spring-sown oat varieties grown in plots at Texas Substation No. 6, Denton, Tex., 1940.

Variety	C.I.No.	Fall Seeded Yield (Bu. per acre)	Fall Seeded Test weight (Lbs. per bushel)	Spring Seeded Yield (Bu. per acre)	Spring Seeded Test weight (Lbs. per bushel)
T.R.R.P. 1118-69	2503	79.8	28.0	80.8	30.0
Nortex	2382	78.5	29.0	82.2	31.0
T.R.R.P. 1415-12	----	78.0	29.5	81.0	30.5
New Nortex	3422	77.8	29.0	79.6	30.0
Ferguson 922	2150	75.4	30.5	79.3	31.0
Nortex x Victoria	3535	74.2	29.0	78.8	31.0
Appler x Bond	3536	72.6	29.5	80.6	31.0
Fultex	3531	70.0	34.0	73.6	34.5
Rustler	3754	67.0	30.5	79.8	31.5
Fulghum x Victoria	3529	65.0	33.0	75.0	34.0
Frazier	2381	63.8	31.0	64.9	32.0

Yields of fall-sown barley varieties grown in plots at Texas Substation No. 6, Denton, Tex., 1940.

Variety	C.I. No.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Tenkow	----	48.9	46.0
Harlan Hybrid 1-32-103	6502	46.8	44.5
Ferguson Texas Winter	6498	46.4	43.0
Bailey	5902	44.7	43.5
Finley	5901	44.6	43.0
Tennessee Winter (Winkelman)	6128	44.5	42.0
Wintex	6127	44.3	44.5
Harlan Hybrid 1-33-179	6500	43.0	44.0
Harlan Hybrid 1-33-7	6499	42.6	44.5
Tennessee Winter	3545	33.9	39.0
Do	6125	32.4	40.0

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Aug. 3)

The latter half of July was dry and hot even for western Oklahoma. Some local showers have occurred in this district but owing to the surrounding dry areas their effect has been short.

Counting of stands is almost completed and a few heads are appearing in the earlier plantings and short-season varieties. Sorghum and broomcorn yields are dependent on rains that may occur later; present soil moisture cannot supply the row crops much longer.

The maximum temperature for the last half of July was 107° on the 26th, but the maximum has been 100° or above on 14 of the 16 days of the period. The minimum temperature was 71° on the 21st and 23rd. The precipitation for the period was 0.29 inch on the 22nd, making a total of 2.54 inches for July. More than 2 inches of the month's rain came as a modified hurricane on July 1.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Aug. 1)

In view of the very dry fall in 1939, the late irregular emergence of cereals, and the low winter and spring precipitation, the yields of winter wheat were very high, as may be seen from the following data on varieties grown in quadruplicated 1/47-acre plots in 1939-40.

Variety	C. I. No.	Ave. yield (Bu. per acre)
Hard Red Winter		
Kawvale x Tenmarq	11669	23.2
Chiefkan	11754	22.9
Oro x Tenmarq	11673	21.7
Tenmarq x Neb. 28	11847	21.3
Quivira	8886	20.4
Blackhull	6251	20.3
Early Blackhull	8856	18.3
Turkey	1558	18.2
Blackhull x Oro	11961	18.2
Cheyenne	8885	17.9
Kharkof	1442	17.7
Oro	8220	17.4
Kanred	5146	17.3
Tenmarq	6936	16.0
Turkey selection	10016	15.8
Soft Red Winter		
Sibley 62	11523	18.5
Denton	8265	17.2
Kawvale	8180	16.4

Yields on farms ranged from 0 to 30 bushels per acre. The State average, however, will be below normal. Test weights also will be below average.

Stem rust, leaf rust, and lodging were of little or no consequence in western Oklahoma owing to the prevailing moderately dry condition, though in north-central Oklahoma stem rust was quite prevalent and caused some reduction in yields.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Foot Rots, Hurley Fellows) (Aug. 6)

The weather records show that this July was the fourth driest that has been observed in the vicinity of Manhattan. As a result the corn crop is nearly a failure and the sorghums are badly injured to date.

The take-all foot-rot of wheat was more severe this year than last. This was particularly true in Riley and Sedgwick counties. Several fields were found in which the losses ran from 50 to 75 percent. Take-all this year, however, was not nearly so abundant as during a normal weather year. A fair amount of moisture and cool weather during the spring and early summer probably accounted for an increase of take-all this year.

The foot-rot ordinarily found in the dry-land areas was well named when called the "dry-land foot-rot." The area of the semiarid regions has been greatly increased during the last few years and the foot-rot has followed in step with it.

The dry-land foot-rot was found west from Manhattan to Denver and scattered through northeastern Colorado and extreme northwestern Kansas. This must not be interpreted to mean there was wheat everywhere throughout those regions. The foot-rot was particularly abundant in localities or fields where germination was prompt last fall.

In the past much emphasis has been laid on the fact that early seeding encouraged dry-land foot-rot. This idea was stressed this crop year by the behavior of the disease in fields where germination was irregular. Spots or areas in fields where germination was prompt had much more disease than in places where it was retarded by drought.

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Aug. 3)

July was a month of blistering heat and extreme drought in many parts of Kansas. Good rains fell in some localities in the western third of the State early in July, but little has been received since then. At Manhattan no rain of much consequence has fallen since June 11. Only 0.38 inch was received in July and that all fell in showers on July 26 and 27. Maximum temperatures during the last week in June were in excess of 100° on all but one day. Temperatures of 109° were recorded on the 24th and 25th.

Corn that looked well until the middle of July now is nearly destroyed. Only spots of green remain in many fields. Even sorghums have been damaged in some localities and the third crop of alfalfa is almost a total loss.

The 1940 Kansas wheat crop turned out considerably better than expected although it still must be called a short crop. Rains during May and early June resulted in some excellent yields of wheat in the eastern half of the State.

Sten rust was very severe in late fields and some extremely late fields in south-central counties were destroyed by rust. Loose smut again was abundant, especially in fields of Clarkan, Chiefkan, Turkey, and Blackhull. Kawvale continued to show resistance to loose smut wherever it was grown.

Considerable plowing for wheat already has been done despite the drought. If rain falls soon most of the land for the 1941 wheat will be plowed immediately. So far it has not been possible to plow the land for the 1941 rust nursery at Manhattan, owing to the baked condition of the soil.

Threshing of material from the 1940 rust nursery has been completed and part of the grain notes have been taken.

Mr. E. G. Moore, of the Division of Information, was a station visitor on August 2 and 3.

COLORADO

AGRICULTURAL EXPERIMENT STATION, FORT COLLINS (Wheat Improvement, Horace S. Smith) (Aug. 3)

Only 0.13 inch of rain has been received during the latter half of July. The total for the month of July was 1.65 inches, most of which fell the first three days of the month. The long-time average precipitation for July is 1.66 inches.

Dry, hot weather during the month caused small grain crops to ripen rapidly. Harvesting of winter wheat, spring wheat, barley, and oats is almost completed and threshing will begin in about 10 days.

The second crop of alfalfa has been cut and yields taken on the various experimental plots were very good.

Corn has made rapid growth during the past three weeks and pollinating in the breeding plots began about a week ago.

At the Dryland Experiment Station at Akron, harvesting of the small grain crops has been completed. Yields will be low because of very poor stands and hail damage, especially on the winter wheat plots.

Dr. K. S. Quisenberry spent several days at Fort Collins looking over the winter wheat experiments.

Mr. J. J. Curtis, former Junior Agronomist stationed here, has been transferred to the Bureau of Agricultural Chemistry and Engineering as Assistant Agricultural Technologist. He left for Peoria, Illinois, on August 1 and will be employed in the Northern Regional Research Laboratory there.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) [Aug. 3]

Average yield per acre and weight per bushel of winter wheat varieties grown in five 1/40-acre plots, Lincoln, Nebr., 1940.

Variety	Number		Yield	Test weight
	C. I.	Nebr.	(Bu. per acre)	(Lbs. per bu.)
Kawvale x Tenmarq	11669	1086	22.7	59.9
Do	-----	1114	21.2	57.6
Do	11750	1102	21.2	57.9
Turkey selection	10016	1069	20.3	60.8
Blackhull	6251	1004	20.1	61.5
Kawvale x Tenmarq	-----	1113	20.0	58.8
Blackhull selection	11737	1093	19.9	62.8
Oro x Tenmarq	11673	1101	19.5	59.6
Cheyenne	8885	1050	19.4	63.0
Kawvale x Tenmarq	-----	1104	19.1	58.9
Chiefkan	11754	1100	18.8	62.4
Oro x Tenmarq	11672	1103	18.7	59.6
Kanred x Blackhull	11844	1098	18.5	59.8
Cheyenne selection	11666	1087	18.1	61.8
Turkey	-----	1	17.9	60.8
Iobred selection (2473)	-----	-----	17.8	61.9
Clarkan	8858	1084	17.8	62.2
Minturki x Blackhull selection 31-A-899		-----	17.6	61.4
Tenmarq	6936	1030	17.4	59.3
Turkey selection	11577	1081	16.7	59.6
Turkey x Minturki	11580	1094	16.2	59.1
Kawvale	8180	1052	15.7	57.9
Turkey	-----	312	15.7	60.6
Nebred	10094	1063	15.1	60.7
Turkey selection	11735	1096	14.7	61.6
Nebraska No. 60	6250	60	14.4	61.5
Iobred	6934	1023	14.3	62.3
Kanred	5146	1006	14.2	61.0
Kharkof	1442	1010	13.7	61.1

Average yield per acre and weight per bushel of spring wheat varieties grown in three 1/40-acre plots, Lincoln, Nebr., 1940.

Variety	Number		Yield	Test weight
	C. I.	Nebr.	(Bu. per acre)	(Lbs. per bu.)
Ceres	6900	1028	8.2	60.2
Thatcher	10003	1106	7.8	59.7
Mercury	11872	1110	7.5	58.5
Rival	11708	1108	7.0	58.1
Marquis	3641	1001	7.0	58.5
Kearney	6585	1009	7.0	60.8
Pilot	11428	1107	6.9	57.1
Premier	11940	1111	6.9	59.6
Reward	8182	1073	6.7	62.2
Merit	11870	1109	6.5	56.4
Mindum	5296	1080	5.3	59.3
Renown	11947	1112	4.8	56.8

Average yield per acre and weight per bushel of oat varieties grown in five 1/40-acre plots, Lincoln, Nebr., 1940.

Variety	Number C.I.	Number Nebr.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Brunker	2054	535	27.2	34.4
Fulton	3327	550	25.2	36.2
Tama	3502	---	24.7	35.6
Trojan	2491	552	24.7	33.1
Burt 518	2886	518	24.0	33.1
Victoria x Richland	3314	549	22.8	35.6
Columbia	2820	538	22.7	35.6
Victoria x Richland	3313	542	22.7	36.1
Boone	3305	553	22.6	36.0
Victoria x Richland	3310	548	22.3	35.5
Markton x Iogold	3236	543	22.3	35.7
Marion	3247	547	21.5	35.2
Kherson (Nebr. No. 5)	1208	505	21.1	32.0
Victoria x Richland	3302	544	20.7	35.9
Burt	1222	503	20.5	35.2
Kherson (Nebr. No. 21)	841	504	20.4	31.4
Richland selection 52	3008	541	20.3	35.6
Richland	787	540	20.3	35.8
Kherson (common)	1209	501	19.6	31.1
Hancock	3346	554	18.8	33.4
Rainbow	2345	551	18.0	29.0
Kanota	839	508	17.8	34.4
Fulghum (Coker No. 3)	3666	539	17.6	33.9
Iogold	2329	511	17.2	33.4

Average yield per acre and weight per bushel of barley varieties grown in four 1/40-acre plots, Lincoln, Nebr., 1940.

Variety	Number C.I.	Number Nebr.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Atlas x Vaughn (Moscow No. 1)	----	129	23.5	39.5
Flynn	5911	107	23.4	41.4
Club Mariout	261	121	23.3	40.3
Atlas x Vaughn (Moscow No. 9)	6566	130	22.9	39.0
North Platte No. 1	5266	116	22.8	34.3
Velvon	6109	127	21.1	41.6
Spartan	5027	111	20.7	48.1
Lico	6279	128	20.6	41.8
Short Comfort	5907	104	19.1	40.8
Trebi	936	105	18.9	40.3
Ezond	6265	115	17.6	40.0
Trebi x Velvet selection 4 (Mont. 1621)	6353	125	15.5	44.0
Smooth Awn x Manchuria (Mont. 1618)	5998	126	13.3	45.9
Wisconsin Pedigree 37	5028	113	13.2	43.2
Manchuria (Minn. 184)	2330	102	12.2	44.4
Wisconsin Barbless (Ped. 38)	5105	119	11.9	42.4
Manchuria	2947	123	11.3	43.4
Comfort	4578	108	10.4	43.1
Velvet	4252	120	9.7	42.8
Composite Cross No. 3	6144	---	11.5 1/	----

1/ Single plot.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Aug. 1)

Hot, humid weather during the last half of July caused rapid ripening of crops. Late varieties of wheat, oats, and barley apparently benefited greatly from 2.35 inches of rain during this period. Most of the rain occurred at night so that there was little interference with field work on account of wet weather. Early varieties of wheat, oats, and barley had suffered severely from the prolonged drought preceding the rainy period and therefore probably will produce lower yields of poorer quality grain than the later varieties.

There was little stem rust on early wheat but heavy stem rust infection developed on susceptible varieties in a late seeding. Little leaf rust developed even on late wheat. Only traces of stem rust and no crown rust were noted on oats. A little rust was noted on flax.

Harvesting of the oat and barley varieties in plots began July 23 and harvest of the cereal plots was completed July 29. Harvesting of the wheat nursery began July 24 and was completed July 31 except for a few late rows that will have to be left for a few days. One variety of flax in plots was harvested July 29 and other varieties are ripening rapidly.

Threshing of cereal plots and nurseries probably will be under way early next week if weather permits.

The maximum temperature was 99° and the minimum 55°.

Visitors included Messrs. J. A. Clark, L. R. Waldron, C. E. Leighty, T. R. Stanton, M. N. Levine, A. C. Dillman, and W. J. Leary.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 2)

During the latter half of July hot weather prevailed and frequent local thunderstorms totaled 3.03 inches. Only 0.09 inch of rain fell during the first half of July. Numerous local hailstorms have destroyed crops in nearby and distant parts of the State.

Varietal field plots are harvested except winter wheat plots that emerged about May 1. Almost all of the nursery, with the exception of the smut nursery, is harvested. The threshing of rotation plots is in progress. Harvesting in the vicinity began last week and combining began this week.

Yields vary considerably because of local rains and farming practices. Wheat is shriveled somewhat in many cases owing to drought and to injury from Say's Plant Bug. This bug is present in the greatest numbers ever observed here. Counts in some plots showed about 1 bug to every 4 heads of wheat with occasionally 4 bugs on one head. Rust is not prevalent enough to affect yields except possibly a few late-sown fields. Threshing of cereal plots is expected to begin next week.

Official visitors during the latter half of July included C. E. Leighty, John M. Stephens, J. A. Clark, T. R. Stanton, and F. A. Coffman, L. R. Waldron, William J. Leary, and O. S. Fisher.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Aug. 1)

Harvest of the durum wheat nursery at Fargo was interrupted by an inch of rain on July 28 and another inch on the 30th. Last evening another light shower prevented cutting this morning. The total rainfall for July was 3.66 inches, slightly above normal. Although June rainfall was deficient, light rains in July were sufficient to permit fairly good filling of the grain, and test weights will be above 60 pounds. Stem rust was heavy enough in the regular durum nursery and in the later-sown breeding material to show differential readings. Mindum checks will carry up to 60 or 80 percent infection.

At Langdon the nursery was not so far along, and consequently not so severely injured by the June drought. Therefore, it will benefit greatly from the July rains. It looked very fine July 23 and 24. The grain was filling remarkably well, and it looked as if nothing would be ripe before the 10th of August. Stem rust was developing rapidly under favorable conditions, frequent showers, and humid weather. Prospects now are that the durum wheat crop will be injured in places by stem rust. Grasshoppers were numerous in localities not far distant from Langdon, but so far, have not injured the Langdon material.

AGRICULTURAL EXPERIMENT STATION, FARGO (Flax Diseases, H. H. Flor) (July 24)

On a trip through central, eastern, and southern Minnesota, eastern South Dakota, and southeastern North Dakota, June 3-6, observations were made on the development of the flax crop and the prevalence of seedling diseases.

Throughout the entire area covered, it was observed that a greater acreage of flax had been sown than for a number of years. On the whole, the crop appeared to be in good condition. The fields were fairly clean and the stands good, except in some sections of eastern South Dakota where broadcast seeding is practiced, the stands were variable.

In most fields, a trace to 2 to 3 percent of the plants were affected with seedling blight or root rot but no case of severe injury was observed in the hundred odd fields examined. Cultured segments of infected specimens gathered from numerous fields indicated that Rhizoctonia spp. was responsible for most of the injury and was widely distributed. However, from a few fields, isolates of Pythium spp. predominated. Occasional isolates were obtained of other organisms known to cause root rot and seedling blight of flax, namely, Colletotrichum lini, Polyspora lini, and Helminthosporium spp.

The urediospore stage of flax rust, Melampsora lini, was not observed on this trip, but aecial infections were found in one field near Lake Benton, Minn., on June 5.

On June 20, infections of flax rust were general in fields between Alexandria and Fergus Falls, Minn., with moderate to severe infection already present in occasional fields. At Fargo, N. Dak., widely scattered aecial infections were found on June 24. In the Experiment Station fields a moderately heavy, although spotted rust infection developed, but the occurrence of an epidemic has been checked by drought and high temperature and the flax crop prematurely ripened.

AGRICULTURAL EXPERIMENT STATION, FARGO (Cereal rootrots, Roderick Sprague) (July 26)

Field observations made on three trips in late June and the first half of July covered about 30 counties in North Dakota. The stands of small grain were very spotted. The mid-season drought proved rather destructive to over-leafy plants and local showers came too late in some areas. The grain in the northern part of the State looks well, particularly west of Minot, northwest of Williston and near Langdon and there are localized areas such as in extreme southern Cass County and along the edge of Golden Valley County where the grain is heavy. Rains were heavier in the drier (generally) western part of the State than in the usually more humid eastern half. The northwestern counties were particularly favored by well-spaced rains during the growing season. Crops in the area south of Valley City and Jamestown were badly burned and some were beyond help in late June. Crops in the Red River Valley are particularly spotted; one field will have a fair crop and the adjacent field with a slightly different tillage history will be very poor.

Rootrots were found in every field of grain examined but, in general, they were severest in the following counties: Grand Forks, Nelson, Ramsey, Cavalier, Wells, McHenry, Williams, Stark, and Morton. Helminthosporium sativum and to a lesser extent Pythium arrhenomanes and the usual array of Fusarium spp. were isolated from early-season plants of wheat in large numbers. The Pythium was usually found in sandier soils. It has also been isolated from oats, sorghums, corn, pigeon grass (very common) and a number of other grasses, particularly in the sandy loam hill plot at Mandan.

Root injury based on a calculated loss in yield ranged from 0.7 to 1 percent in some fields to as much as 9 percent in other commercial fields. On the stations in rotation plots losses ran higher than this; in one case at Dickinson, for instance, in a plot of fall plowed durum wheat continuously cropped the loss was 35 percent from Helminthosporium-Fusarium rootrot. In general, losses on fallow averaged about 9 percent in wheat, on disced corn land about 10-11 percent, on spring-plowed land about 10 percent and on fall plowed from 15 to 35 percent, depending on the rotations involved. Green manure caused material increases in rootrot at Mandan and at Dickinson.

Varietal resistance records were taken at Mandan, Dickinson, and Williston and in replicated plots at McCanna. Counts are in progress at Fargo and will be made next week at Langdon. Results do not show any wheat or wheats that are consistently outstanding. It might be said that some are worse than others. The ones that show consistently most rot are Ceres, Marquis, Pilot, and some of the durums. Possibly Premier, Merit, Vesta, and Rival are somewhat less involved, while Nordhougen seems to be slightly resistant or is an escape. At Fargo and also at Williston early season blight was very scarce but in late season a crown rot comparable to Hurley Fellows' dry-land footrot developed in virtually every plant following late rains. It is admittedly difficult to gauge the exact seriousness of this condition but it is believed to be of decided economic importance, particularly at Fargo, where root growth appears to terminate abruptly after this attack. Isolations which are just now beginning to develop indicate that Fusarium outnumbers Helminthosporium in this late-season warm weather disease.

Isolations of fungi from grasses showed early season predominance of Helminthosporium sativum in a myriad of strains. As mentioned, Pythium was also obtained from several species of grasses, and Fusarium spp. have been isolated from 48 species of grasses showing rootrot lesions. Seedling blights of grasses are important at Mandan, Langdon, McCanna, and Park River and are present in some seriousness at Fargo and less so apparently at Dickinson and Williston. Of course, in eastern South Dakota seedling blight has virtually stopped the grass seeding program in some areas near Huron, and at Brookings and southward. At Huron, Alcester, Vermillion, and adjacent areas in South Dakota early season isolations ran strongly to Helminthosporium sativum, but Fusarium appeared to be a factor particularly at Vermillion. With fresh material it is suspected that Pythium would be found in greater amounts than the few isolations that were possible with advanced specimens received.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (July 31)

In most sections of the State severe drought has greatly reduced prospective yields of spring grains, and in local areas grasshoppers are destructive.

At Bozeman, spring grains are more advanced than usual for corresponding seeding dates. Early barley varieties are approaching maturity and some oats are turning color. Winter wheats are mostly ripe but are not to be harvested for yield because of mouse injury to stands under the snow.

Combining of winter wheat started last week in the north end of the Gallatin Valley.

Dwarf smut is very prevalent again this year in many fields along the foot of the Bridger Range. Some fields of more than 50 acres average approximately 50 percent infected heads and some acres in the fields have more than 75 percent infection.

At Moccasin, winter wheats have been harvested and flax and barley were ripe July 24. Prolonged drought climaxed by hot wind on July 23 almost completely defoliated the spring wheats in the mid-dough stage. However, cooler weather on July 24 and a 0.60 inch precipitation on the 25th may allow most varieties to fill with fair yields of heavy wheat. Grasshoppers have been prevalent there since July 8 and certain barley varieties and most of the flax were damaged before harvest.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Aug. 1)

Clear, dry weather continued throughout July. Only 1.27 inches of rainfall have been recorded since April. Crops generally have suffered considerable losses in yields and vegetative growth as a result. This is especially true of late-sown winter wheat and late-sown spring small grains.

Harvesting and threshing operations are completed for the winter wheat nurseries, while a large part of the spring-seeded small grains are harvested and threshed. Yields in the winter wheat nursery, which promised 40 to 50 bushels in May, actually yielded from 20 to 30 bushels per acre. Some of the spring barley varieties are yielding in excess of 100 bushels per acre although the yields are generally from 70 to 90 bushels. This nursery was seeded during the latter part of March and with two irrigations has done very well. Late seedings show very poor yields.

Irrigation water is becoming much reduced and late maturing crops such as sugar beets are beginning to suffer badly throughout the State.

Corn has made excellent growth where sufficient water has been applied. Red spiders are doing considerable damage both in commercial fields and in the varietal nursery. Attempts to control them by spraying have been made but it is yet too early to predict the results.

Temperatures for the month were normal. The maximum of 100° was reached on only one day.

On July 12 and 13 the Western Branch of the American Society of Agronomy met at Logan for their annual meetings. More than 60 members were in attendance, representing 9 of the western States. Several papers were discussed and field trips were taken to cereal and forage nurseries.

Mr. A. H. Post of Bozeman, Mont., was elected President for the coming year and Mr. D. D. Hill, of Corvallis, Oreg., was elected Secretary.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Aug. 3)

The mean temperature for July was 86.5°, which was very slightly higher than normal. The precipitation was only 0.84 inch. This was slightly more than one-third of the normal rainfall of 2.25 inches.

The varieties in the sorghum nursery, planted here the second week in July, are making very rapid growth. Nearly perfect stands were obtained for most of the varieties. The first irrigation is now being applied.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 Aug. 25, 1940 No. 13

Personnel (Aug. 11-25) and Field Station (Aug. 1-15)

PERSONNEL ITEMS

Dr. Charlotte Elliott is in New York State taking notes on experimental corn plots and collecting insect vectors in connection with her investigations on bacterial wilt of corn.

Dr. M. T. Jenkins left Washington August 23 to visit corn-producing areas in Tennessee, Louisiana, Arkansas, Oklahoma, Kansas, Nebraska, Iowa, Missouri, Illinois, Wisconsin, Indiana, Ohio, Pennsylvania, and West Virginia. Dr. Jenkins will confer with State and Federal officials with reference to cooperative corn improvement research. On September 9 and 10 he will attend the meetings of the Corn Belt Section of the American Society of Agronomy to be held at Ames, Iowa. He will be back in Washington about October 1.

Mr. J. W. Jones left Washington on August 22 for the rice-producing States of Louisiana, Texas, Arkansas, California, and Missouri to inspect cooperative experiments with rice. He will make crosses and selections and study hybrid material. He will also confer with officials of State agricultural experiment stations and Division personnel. Mr. Jones will return to Washington about the middle of October.

RECENT PUBLICATIONS

J. J. Christensen and H. A. Rodenhiser. Physiologic Specialization and Genetics of the Smut Fungi. Bot. Rev. 6 (8): 389-425. August 1940.

J. G. Dickson, A. D. Dickson, H. L. Shands, and B. A. Burkhart. Barley and Malt Studies. VI. Experimental Malting of Barleys Grown in 1938. Cereal Chem. 17 (4): 495-504. July 1940. (Based on cooperative investigations between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station. The cooperative investigations include the agricultural experiment stations of California, Colorado, Illinois, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin, where the uniform barley varietal series have been grown each year. The Federal WPA has contributed to the research program during the past year through a grant under the University of Wisconsin WPA Natural Science Project. The United States Maltsters Association has cooperated through an industrial fellowship grant to the University of Wisconsin.)

Charlotte Elliott and F. W. Poos. Seasonal Development, Insect Vectors, and Host Range of Bacterial Wilt of Sweet Corn. Jour. Agr. Res. 60 (10): 645-686, figs. 1-2. May 15, 1940. (G-1164) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.)

H. H. Flor. New Physiologic Races of Flax Rust. Jour. Agr. Res. 60 (9): 575-591. May 1, 1940. (G-1162) (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

L. W. Kephart. Adrian John Pieters. Science 91 (2374): 610-611. June 28, 1940.

E. H. Toole and F. A. Coffman. Variations in the Dormancy of Seeds of the Wild Oat (Avena fatua). Amer. Soc. Agron. Jour. 32 (8): 631-638. August 1940. (Cooperative investigations of the former Division of Seed Investigations and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experinent stations or other agencies.)

VIRGINIA

ARLINGTON EXPERIMENT FARM, ARLINGTON (Small Grain Agronomy, J. W. Taylor) (Aug.14)

Threshing of small grains has been completed. Fall-sown barley was about average in yield, wheat approximately 20 percent above, and fall-sown oats 25 percent above. Bushel weight of both wheat and oat varieties was below average, probably due to the unusually dry weather in June (0.63 inch). The period between flowering and harvest was curtailed about 7 days.

The lowest temperature -2° F. of the year occurred in January. At this time a snow covering protected small grains and no killing resulted. Heaving caused serious injury to some plots of barley.

Yields are presented in the accompanying tables.

Acre yield of fall-sown barley varieties grown in duplicate 1/80-acre plots at the Arlington Experiment Farm, 1939-40.

Variety	C. I. No.	Yield (Bu. per Acre)
Composite Cross	4116	39.6
Han River	2163	38.8
Tennessee Winter x Smooth Awn	—	39.1
Composite Cross	5530	37.1
Esaw	4690	37.1
Tennessee Winter (Va.)	6034	36.8
Hooded 16	—	36.3
Tennessee Winter	3546	36.3
Tennessee Winter	3534	35.4
Mechanical Mixture	4115	34.5
Smooth Awn 86	6268	33.8
Wood Hooded	6235	32.3
Beardless 6	2746	32.1
Nakano Wase 59	—	31.9
Smooth Awn 205	6267	29.9
Nakano Wase 45	—	29.6
Alaska	4106	27.5
Tennessee Winter	257	26.8
Nakano Wase 68	6272	26.0
Kentucky Smooth Awn 11	6021	23.8
Marnobarb	6120	22.5
Poland	6280	21.9
Wisconsin Winter	2159 1/	37.4

1/ Average of 13 check plots.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Aug. 16)

Frequent but light showers during the first half of August lowered the temperature and revived most of the sorghums and broomcorns. However, there is little available soil moisture for growing crops, and yields of sorghums and broomcorn are still dependent on future precipitation.

Crops of the project are heading except the late planted material, which is making satisfactory vegetative growth. Bagging of heads for seed is getting well under way.

The maximum temperature for the first half of August was 106° on the 3d, and the minimum was 61° on both the 6th and 7th. Measurable rains occurred on 7 days, 0.66 inch on the 7th being the highest. A total of 1.06 inches was recorded for the period.

COLORADO

AGRICULTURAL EXPERIMENT STATION, FORT COLLINS (Wheat Improvement, Horace S. Smith) (Aug. 20)

For the first 15 days of August 0.14 inch of rain has been recorded at Fort Collins. The long time average for the month of August is 1.40 inches.

Threshing of small grains is well under way and will be completed in about 10 days.

Alfalfa is making an excellent third-crop growth in spite of the dry weather.

Pollinating in the corn-breeding plots has been completed except for a few late inbreds. All of the corn on the Station is in excellent condition and yields should be good.

At the U. S. Dry-land Field Station at Akron there has been no relief from the drought. There has actually been less than an inch total precipitation recorded since the 6th of June. Temperatures have reached 103°.

The millets and corn are probably beyond recovery. There will be light production of these crops on fallowed land only.

Sorghums are making a prospective showing on fallow equal to that of last year, and a better showing on corn stubble land. Medium late forage sorghum varieties have not headed even on fallowed land. The grain and dual purpose varieties are thus meetin the adverse conditions more successfully than strictly forage types.

Mr. A. J. Mangelsdorf, who is doing sugarcane breeding work in Hawaii, visited the station.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Aug. 19)

Dry weather during the first half of August was favorable for harvesting and threshing.

Threshing of the wheat, oat, barley and flax varietal plots, wheat nursery, and main flax nursery is completed. Acre yields from the wheat, oat, and barley varietal plots are presented in the accompanying tables.

Differences in the yield from different individual plots of the same variety, due chiefly to variations in the land, appear to be more pronounced this season than usual. In case of the barley varieties, a significant cause of loss and variation was severe damage by rabbits. The rabbits showed a decided preference for Rex and also showed some other minor preferences.

The maximum temperature was 100° on the 10th, and the minimum 50° on the 5th. The precipitation was 0.15 inch.

Average acre yield of wheat varieties grown in 1/68-acre plots at Mandan, N. Dak., 1940.

Variety	C. I. No.	Nursery No.	Yield (Bu. per Acre)
Hope x Hard Federation	11798	MN 1268	17.3
C.-D.C. x C.-H.-F. 1/	12008	Ns 2829	16.4
H-44 x Ceres	12048	MN 1342-24	16.2
Vesta	11712	Ns 2592	16.0
Hope x Supreme	12038	MN 1543	15.7
Pilot-B	11428	MN 1098-B	15.3
Rival	11708	Ns 2634	15.1
Mercury x Mercury-1383	---	Ns 2822	14.9
C.-D.C. x C.-H.-F. 1/	11894	Ns 2746	14.7
Premier	11940	Ns 2772	14.5
C.-D.C. x C.-H.-F. 1/	12007	Ns 2809	14.4
Reliance-Hope x H-44-Ceres	---	MN 1525	14.1
H-44 x Ceres	12010	MN 1349-15	14.0
Merit	11870	MN 1348	13.9
Thatcher	10003	---	13.7
Hope x Reward	---	MN 1546	13.2
Marquis	3641	---	12.9
Conet - MN. 1110 x H-44-Ceres	---	MN 1516	12.7
Carleeds (Nordhougen)	11801	---	12.6
Ceres	6900	---	12.5
Pilot-13	11945	MN 1098-13	12.5
Renown (new)	11947	R.L. 716-6	11.2
Durum			
Mindum	5296	---	10.5
Kubanka	1440	---	9.9

1/ Ceres-Double Cross x Ceres-Hope-Florence.

Acre yields of oat varieties grown in 1/66-acre plots at Mandan, N. Dak., 1940.

Variety	C. I. No.	Yield (Bu. per Acre)
Anthony	2143	35.4
Markton	2055	35.1
Markton x Rainbow	3351	34.7
Morota	2344	34.7
Gopher	2027	34.4
Minrus	2144	33.2
Rainbow	2345	32.3
Victory	560	32.3
Marion	3247	32.1
Iogold	2329	32.0
Rusota	2343	30.4
Nakota	2883	19.4 1/

1/ Allowance made for 30 percent hull.

Average acre yields of barley varieties grown in 1/66-acre plots at Mandan, N. Dak., 1940.

Variety	C. I. No.	Yield (Bu. per acre)
Steigum	907	18.4
Velvon	6109	17.8
Spartan	5027	15.0
Ezond	6265	15.0
Trebi	936	15.0
Odessa	182	14.3
Nursery selection 2752	6358	14.2
Nursery selection 2753	6359	13.4
Wisconsin Barbless(Pedigree 38)	5105	13.3
Horn	926	13.2
Rex	---	10.2

Note: Barley plots were severely damaged by rabbits, especially Rex in series 3.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 15)

Hot, dry weather has prevailed during the first half of August and threshing has proceeded without interruption from weather. Replicated field plots of cereal crops at this station have been threshed and the threshing of the nursery is in progress. Threshing and combining of grain in this vicinity is well along, and widely varying yields are reported, due to many local rains that relieved the drought in spots.

Yields from the spring wheat nursery seeded about the middle of April on fallow are very good. Yields from the field plots, half on fallow and half on corn land, are low due largely to late seeding and drought. The seeding of field plots was delayed by April rains until April 30 and May 1. Yields from field plots are not all computed, but spring wheat in quadruplicated plots ranged from 2.6 bushels to 8.4 bushels per acre. Yields from the uniform regional spring wheat nursery are given in the accompanying table.

Dr. E. A. Helgeson and Prof. O. A. Stevens from the Agricultural Experiment Station at Fargo were visitors at the Substation today.

Acre yields from the Uniform Regional Spring Wheat Nursery at the Dickinson Substation, 1940 1/

Variety or Cross	C. I. No.	Nursery No.	Yield (Bu. per Acre)
Merit-3	12036	1348-3	28.8
H-44-Ceres (1348-15) x Thatcher	12037	1530	27.8
Mercury^2 x Comet-1018 (1383) x 3.2.3.8.29	12046	2901	26.4
Pilot-13	11945	1098-13	26.1
Thatcher	10003	---	26.0
Hope x Supreme	12038	1543	25.5
Mercury^2 x Comet-1018 (1383)	12045	2871	25.5
Marquis^2 x H-44	12012	R.L.1333	25.2
C.-D.C. x C.-H.-F. 2/	12005	2797	25.0
Do.	12008	2829	24.9
H-44 x Ceres	12048	1342-24	24.8
Marquis	3641	---	24.3
Regent	11869	R.L.975.1	24.2
Ceres x Hope-Ridit	12039	1534	24.2
Comet-1121 x C.-H.-F.	12047	1523	23.9
Hope x Thatcher^3	12044	II-31-14	23.6
H-44 x Marquis	12042	I-38-3	22.5
Comet x Reliance - Hope (1110)	12049	1568	22.5
Hope x Thatcher^3	12043	II-31-6	21.9
H-44 x Ceres	12010	1348-15	21.8
H-44 x Thatcher	12041	II-28-72	21.7
Hope x Ceres	12058	S.D.1463-26	21.3
H-44 x Thatcher 2/	12040	II-28-57	20.0
C.-D.C. x C.-H.-F. 2/	12007	2809	20.0
Reliance-Hope x Reward	12059	S.D.1464-18	19.9
Reliance x Hope	11934	1139-22	18.4

1/ Preliminary yields subject to slight change when checked.

2/ Ceres-Double Cross x Ceres-Hope-Florence.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 Sept. 10, 1940 No. 14

Personnel (Aug. 26 - Sept. 10) and Field Station (Aug. 16 - 31)

PERSONNEL ITEMS

Mr. L. W. Kephart spent September 5 and 6 in the Shenandoah Valley taking notes on and photographing weed control experiments conducted by farmers in that area.

Mr. C. H. Kyle left Washington September 1 for Tifton, Ga., where he will spend about two months in selecting and hand pollinating corn and obtaining data on cooperative experiments with corn.

Mr. R. W. Leukel left Washington September 8 to travel in Virginia, South Carolina, Georgia, and Florida in order to make a survey of the prevalence of wheat nematode diseases, visiting mills and elevators en route. He will also study and take notes on sorghum diseases and collect smut and other disease specimens for laboratory study.

VISITORS

Mr. W. E. Bryan, head of the department of plant breeding of the University of Arizona, was a visitor in the Division August 30.

Mr. Orrin J. Webster, of the Division of Dry Land Agriculture stationed at the North Platte Substation, North Platte, Nebr., was a Division visitor on September 3.

RECENT PUBLICATIONS

V. F. Tapke. Studies on the Natural Inoculation of Seed Barley with Covered Smut (Ustilago hordei). Jour. Agr. Res. 60(12): 787-810, pl. 1, figs. 1-5. June 15, 1940. (C-1168) (Cooperative investigations of the Division of Cereal Crops and Diseases and the New York (Cornell) Agricultural Experiment Station.)

J. D. Sayre. Storage Tests with Seed Corn. Ohio Jour. Sci. 30(4): 181-185. July 1940. (Cooperative investigations of the Ohio Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

J. B. Sieglinger. A Sorghum Seed Color Chimera. Jour. Hered. 31(8): 363-364, fig. 14. August 1940.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1132

September 4, 1940

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

I enclose copy of a memorandum to Chiefs of Bureaus, dated August 26, from Mr. Arthur B. Thatcher, Chief, Office of Plant and Operations, asking the cooperation of the Bureau in withholding from the mails bulk mailings in so far as this may be practicable during the Christmas holiday season, from December 10 to 26. Will you kindly call this to the attention of members of your staff, and see that everything practicable is done to cooperate with the postal service in this matter.

Sincerely yours,

E. C. Auchter

Chief of Bureau.

Enclosure.

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of the Secretary
Washington

Office of Plant and Operations August 26, 1940

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

Your attention is called to a letter received from Mr. V. C. Burke, Postmaster, Washington, D. C., from which the following is quoted:

> "*** each year in advance of the Christmas holiday season this office finds it necessary to request the cooperation of all Government departments in withholding from the mails during the period from December 10 to 26, all bulk mailings of pamphlets, books, forms and other printed matter. Matter of this character seriously interferes with the expeditious handling of the holiday mails and on account of its weight often causes damage to Christmas parcels.
>
> "The matter is being brought to your attention at this time with the hope that it will be presented to those in charge of furnishing supplies for regional offices and agencies in order that such supplies may be ordered sufficiently early to complete delivery before December 10. It should be understood that this request in no way affects the handling of ordinary official correspondence."

In addition to the above quoted request, it is suggested that all regional and field offices be notified to withhold from the mails, during the period from December 10 to December 26, all bulk mailings and to order supplies sufficiently early to effect delivery before December 10.

Arthur B. Thatcher
Chief, Office of Plant and Operations.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Sept. 1)

The unusually cool weather which has prevailed during the summer continued through August. The mean temperature for the month was 80.7°, which is 3.4° below normal. The monthly accumulated departure from normal since January 1 is now 17.4°. The maximum temperature for the month was 101° and on only two days were temperatures of 100° or above recorded. The minimum temperatures have been very low, that for the month being 56° which is one of the lowest ever recorded in August. The precipitation for the month was 2.59 inches, which is 0.06 inch above normal.

The entire month was spent in calculating yields in the small grain experiments and writing the annual report. Preliminary seeding plans for the fall are also under way.

Harvest of corn has just now been completed and preparation of seedbeds for fall grain is under way. Owing to the cool, wet season, corn yields in the county are exceptionally high. Cotton is late in maturing and the first bale has just reached market.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Sept. 2)

The weather of the last half of August continued dry. Early and normal planted sorghums and broomcorn are drying and firing badly, the only exceptions being those parts of the project with poor stands caused by the violent rain storm of July 1. The late variety planting made July 10 still has a chance to mature fair grain yields should rains occur soon.

Bagging of seed heads is being done mainly in the blocks with poor stands and at ends of rows where there was some moisture reserve.

The maximum temperature for the last half of August was 100° on the 26th and the minimum, 55° on the 19th. The precipitation was 0.09 inch, or a total of 1.15 inches for the month of August. This occurred in 10 measurable showers ranging from 0.01 to 0.66 inch.

COLORADO

AGRICULTURAL EXPERIMENT STATION, FORT COLLINS (Wheat Improvement, Horace S. Smith) [Sept. 4]

At Fort Collins 0.29 inch of rain fell during the month of August. This is much below the long time average of 1.40 inches.

Alfalfa is making favorable growth and third crop hay will be cut within the next two weeks. The plantings that were made this year produced excellent stands and one crop of hay was harvested during the last week of August.

Corn is making a rapid growth and, from all indications, yields will be very good. The ears are set and the corn is in the milk stage.

At the U. S. Dry Land Station at Akron the lack of rainfall experienced since June 6 was abated the last week of August when 1.42 inches of precipitation were recorded. This was sufficient to wet down to moisture on fallow land. This rain will help to fill the sorghums, which on fallow are making a good showing. On Sudan grass stubble there will be considerable more production than last year.

Early ripening proso varieties were harvested. The others, which headed poorly, haven't, as yet, shown any response to the recent rainfall.

Dr. O. S. Aamodt and Mr. L. C. Newell, of the Division of Forage Crops and Diseases, visited the Fort Collins Station on August 29.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 31)

The weather was dry and hot during most of August. The precipitation for the month was but 0.37 inch. The maximum temperature was 99° on the 11th and the minimum, 34° on the 30th. Rain will be needed to insure germination of winter wheat and rye, which should be seeded in the near future.

Nursery threshing was finished about a week ago. The seed is now being cleaned and test weights determined.

Mr. F. G. Butcher, Extension Entomologist for North Dakota, was a visitor at the station last week. He is making a survey of damage done by Say's Plant Bug. Apparently this bug has done rather serious damage over a considerable area in this part of the State. Wheat and flax and, to a lesser extent, other cereal crops have been injured more or less by this bug, which punctures the kernel and extracts the juice while the seed is still green. Injury to late maturing wheat heads is especially noticeable in that some kernels are badly shriveled while others in the same head are plump as usual.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Aug. 31)

Nursery threshing is well under way at Fargo. Yields in nursery rows of durum are running around 30 bushels per acre and the test weights are mostly above 60. Quality of seed at Fargo is better than average. Yields in Dr. Waldron's common wheat nursery (different land) were much higher.

Nursery harvesting at Langdon was completed last week, and threshing there will begin late next week---about September 6. Showers have interrupted the completion of field work. Yields and test weights at Langdon probably will be higher than at Fargo.

Black point infection is very severe in the durum wheat area. Preliminary identifications suggest several fungi and also bacterial glume blotch as the causal agents. This condition is disrupting the durum market because of uncertainty as to how serious this condition is with regard to milling quality. Many kernels are blackened over more than half of their surface. Percentages are running above 7 percent ("damaged kernels"), which is the limit for eligibility to Federal loans.

In the Langdon nursery a close association was observed between stem rust and glume blotch. In taking stem rust notes on resistant and susceptible durum head rows, a head with glume blotch almost invariably pointed to a stem-rust infected stem. Stem rust was also common on the heads, and the consistency of this relation suggested that the rust pustules afforded entry to the blotch organism.

Apparently the rains in late July and early August (5 to 10 inches) set the stage for the kernel injury now being observed. In Wells County, where the first rain was not observed and the grain more mature because of the more southerly location, less black point is reported.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Sept. 2)

Weather conditions in the crop year 1939-40 were different than any previously encountered since the establishment of the Station. Precipitation in the fall months was low, there being only 0.03 inch in November, compared with a 11-year average of 1.38 inches. This delayed emergence of fall-sown grain, although ultimately the stands were satisfactory. The winter was so mild that even volunteer oats were not damaged.

Rainfall in February in the Pendleton area was the highest in 19 years, and on the Station was 3 times the normal amount. This washed the soil nitrates to the second and third feet of soil, and because of the moist surface the roots did not grow sufficiently deep to contact the nitrates. Consequently, there was a considerable quantity of yellow wheat in the spring.

About the time wheat was reaching the critical heading and flowering stages, the weather turned hot and dry. Mean temperatures in May and June were considerably above normal, while precipitation in these months was decidedly deficient. Rainfall in June, upon which this area depends for maximum yields, was only 0.07 inch, or 1.36 inches below normal. Because of these conditions, heads of wheat were small and poorly filled. Yields of spring barley, oats, and flax were low and the grain was of poor quality. Test weights of winter and spring wheat also were below average.

Wheat yields in eastern Oregon varied greatly. In the normally drier areas, where grain matures early, yields were better in some cases than in sections usually much more productive.

The following tables give yields and weights per bushel of winter wheat, spring wheat, and spring barley varieties grown in 4 series of 1/53-acre plots at the Pendleton Field Station in 1940. Oat varieties in field plots were not harvested because of poor growth and irregular stands resulting from delayed germination and irregular stands. The soil was badly puddled by heavy spring rains.

Yields and weights per bushel of winter wheat varieties grown in 4 series of 1/53-acre plots at the Pendleton Field Station, 1940.

Variety	C. I. No.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Jenkin	5177	36.0	57.0
Alicel	11700	34.3	57.8
Rio	10061	32.8	60.6
Athena	11693	32.6	57.5
Federation	4734	32.6	58.7
Triplet	5408	31.1	59.5
Golden	10063	30.5	56.9
Kharkof	1442	30.4	60.3
Hybrid 128	4512	30.4	57.8
Oro	8220	30.0	60.5
Albit	8275	29.8	57.0
Hymar	11605	29.3	57.5
Rex	10065	28.6	58.7
Rex M-2	11690	28.0	59.5
Ridit	6703	26.2	59.9
Rex M-1	11689	25.4	59.8

Yields and weights per bushel of spring wheat varieties grown in 4 series of 1/53-acre plots at the Pendleton Field Station, 1940.

Variety	C. I. No.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Omas	6221	33.1	57.0
Federation x Bunyip selection 41	11874	31.4	58.5
Federation x Bunyip selection 49	-----	30.4	56.0
Idaed	11706	30.4	58.1
Baart	1697	29.2	60.1
Federation	4734	29.0	57.0
White Federation	4981	27.4	58.7
Hard Federation 31	8255	27.1	60.2
Marquis	4158	24.7	58.5

Yields and weights per bushel of spring barley varieties grown in 1/53-acre plots at the Pendleton Field Station, 1940.

Variety	C. I. No.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Flynn selection 37	5918	44.8	40.0
Flynn selection 1	5911	39.3	45.0
Trebi	936	38.2	46.7
Atlas	4118	35.0	44.0
Meloy selection 3	4656	31.5	42.6
Composite Cross selection	5449	26.8	37.0

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) [Sept. 4]

One of the most severe droughts of recent years continued throughout August without so much as a shower. Late crops have suffered considerably as a result of decreased irrigation supplies.

Harvesting and threshing of small grains was completed early in August.

The corn silage nursery, consisting of 55 varieties and strains, was completely destroyed by red spiders. All the leaves dried up and the plants were harvested prematurely for silage after taking notes on general characteristics. The corn nursery grown for grain yields is being rapidly destroyed by spiders also, yet it is possible that one or two replications will mature. Commercial fields show heavy infection of spiders in some instances.

The mean temperature for August was 68.6° as compared to 68.7° for an average mean. The mean maximum temperatures were the highest on record at the Central Experiment Farm, while the minimum temperatures were somewhat lower than average. Evaporation for the month was 5.50 inches, while the precipitation was 0.00.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Sept. 4)

The Tucson area had a "blackout" for 2-1/2 days when a 2.25 inch rain and electric storm hit it on the night of August 13 and completely flooded the generators in the local power plant. All of the rain fell in 70 minutes. The total precipitation for August was 2.84 inches--about 0.5 inches above normal. The mean temperature of 83.9° was nearly normal.

The storm did some damage to the leaves of sorghum plants at the University Farm. However, it is believed that the reduction in yield will be very small. None of the selections in the nursery has headed.

Dr. John H. Martin was a Station visitor on Aug. 30 and 31.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 September 25, 1940 No. 15

Personnel (Sept. 11 - 25) and Field Station (Sept. 1 - 15)

PERSONNEL ITEMS

Mr. R. W. Leukel returned on September 23 from a 2-week field trip through southeastern Virginia, eastern Tennessee, North Carolina, South Carolina, Georgia, and northern Florida. He made a brief survey of the prevalence and severity of the wheat nematode disease in the areas where wheat is grown. He also visited sorghum fields en route to make observations on the prevalence of diseases and to collect specimens for study.

The nematode disease of wheat appears to be much less severe this year than last in southeastern Virginia, according to the reports obtained at the mills visited, and this undoubtedly is partly due to the educational campaign carried out by the millers and extension men in this area after the report made by Dr. A. G. Johnson and Mr. Leukel following their survey in this section a year ago.

No evidence of the nematode disease was found in any of the mills visited in eastern Tennessee or in the southwestern part of North Carolina. In the section of Georgia visited little wheat is grown and no wheat screenings were found at the mills visited, as only corn was being ground.

Sorghum nurseries were studied at Quincy and Gainesville, Florida, and at Tifton and Athens, Georgia. Ascochyta sorghina infection was very severe on most of the 322 selections planted at Gainesville but very light on most of these same selections grown at Tifton, where Colletotrichum injury was more severe.

About 40 fields of sorghum were observed from Tifton, Georgia, to Culpeper, Virginia (U. S. Route 29) and smut was found in only 10 of these. Ascochyta was generally prevalent but not severe.

Dr. J. H. Martin returned on September 24 from a 6-week trip through the Great Plains States. Drought was severe in many localities but, in general, the sorghum crop in the Great Plains is the best in seven or eight years. An early frost about September 10 killed the sorghums in North Dakota, most of South Dakota, and parts of Nebraska before some of the grain was fully mature.

The charcoal rot disease, caused by Sclerotium bataticola, was widely prevalent in sorghums, corn, and Sudan grass. It was observed in Illinois, Nebraska, Kansas, Oklahoma, Texas, and New Mexico. Diseased plants were found in all localities in which the crops were sufficiently ripened for the typical symptoms to be evident. Certain fields showed severe damage from poorly filled heads and lodged stalks.

Recent obvious changes in sorghum production include the widespread culture of Pythium-resistant milo strains, Colby milo and Improved Coes, and appreciable acreases of Highland kafir and Club and Day milo.

Mr. T. R. Stanton returned to the Division on August 21 after an extended field trip into the middle western and Rocky Mountain States in the interest of oat improvement. During most of his trip he was accompanied by Mr. D. E. Western, Agriculturist of the Quaker Oats Company, Chicago, Ill., who was greatly interested in the breeding and other experiments with oats that were in progress at the different stations. It was thus possible for him to obtain first hand information on the many new disease resistant varieties and strains that are now being tested and distributed to farmers. Both he and his company are cognizant of the fact that the production of better quality oats and other grains will be reflected in the quality of the many cereal products they place on the market.

Mr. Stanton reports that, in general, excellent and favorable yields were obtained from many of the new disease-resistant oats that have been developed in cooperative experiments for the different sections of the United States.

RECENT PUBLICATIONS

C. Roy Adair. Effect of Time of Seeding on Yield, Milling Quality, and Other Characters in Rice. Amer. Soc. Agron. Jour. 32(9): 697-706. September 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Wayne M. Bever and C. I. Seely. A Preliminary Report on a Fungus Disease of the Field Bindweed, Convolvulus arvensis. Phytopathology 30(9): 774-779, figs. 1-3. September 1940. ("Cooperative investigation of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Idaho Agricultural Experiment Station, as Research Paper No. 184.")

A. A. Bryan, R. C. Eckhardt, and G. F. Sprague. Spacing Experiments with Corn. Amer. Soc. Agron. Jour. 32(9): 707-714. September 1940. (Contribution from the Farm Crops Subsection, Iowa Agricultural Experiment Station, cooperating with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, and the Agricultural Engineering Section, Iowa Agricultural Experiment Station, cooperating with the Bureau of Agricultural Chemistry and Engineering, U. S. Dept. of Agriculture.)

Gertrude M. Cox, Robert C. Eckhardt, and W. G. Cochran. The Analysis of Lattice and Triple Lattice Experiments in Corn Varietal Tests. I. Construction and Numerical Analysis. II. Mathematical Theory. Iowa Agr. Expt. Sta. Res. Bul. 281, 66 pp. September 1940. ("Project 514 of the Statistical Section of the Iowa Agricultural Experiment Station in cooperation with the Division of Agricultural Statistics, Agricultural Marketing Service, United States Department of Agriculture, and project 163 of the Farm Crops Subsection of the Iowa Agricultural Experiment Station in cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.")

Robert C. Eckhardt and A. A. Bryan. Effect of the Method of Combining Two Early and Two Late Inbred Lines of Corn upon the Yield and Variability of the Resulting Double Crosses. Amer. Soc. Agron. Jour. 32(9): 645-656. September 1940. (Contribution from the Farm Crops Subsection, Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, cooperating.)

H. H. Flor. Soil Sickness of Flax in North Dakota. Phytopathology 30(9): 749-760, figs. 1-2. September 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the North Dakota Agricultural Experiment Station.)

Martin Nelson and C. Roy Adair. Rice Variety Experiments in Arkansas. Ark. Agr. Expt. Sta. Bul. 403, 28 pp. June 1940. (Cooperative investigations of the Arkansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Sept. 16)

The first half of September continued dry; this season's drought had an earlier start than that of last year. In 1939 the last effective rain of summer was on July 22; this year it came on July 1.

Some seed heads have been harvested from the early maturing varieties. The ripe heads and seed are small in size and ripened prematurely owing to drought.

Dr. J. H. Martin visited the Station and inspected the project September 5 to 7.

The maximum temperature for the first half of September was 102° on the 9th and the minimum, 44° on the 11th. The precipitation was 0.20 inch in 6 measurable showers.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Sept. 5)

Acre yield of flax varieties grown in triplicate 1/66-acre plots at Mandan, 1940.

Variety	C. I. No.	Yield (Bu. per acre)
Redwing	320	8.0
19 x (19 x 19/112)	739	7.2
Bison	389	6.6
Walsh	645	6.4
Bolley Golden	644	6.4
Newland x E19/112	839	6.2
Linota	244	6.0
Buda selection	737	5.5
Buda	326	5.5
Smoky Golden	736	4.8

The acre yield of 25 varieties representing the Flax Regional Nursery, grown in 3-row plots in triplicate, ranged from 10.5 to 15.4 bushels per acre.

WYOMING

U. S. DRY LAND FIELD STATION, SHERIDAN (R. S. Towle, Supt.) (Sept. 20)

With favorable soil moisture conditions in early summer, flax maintained a good growth until mid-July, when it began to dry up and all varieties ripened prematurely from July 25 to 28. July temperatures were much above normal, the month being the hottest recorded at Sheridan, except only July 1936.

Yield and test weight of flax varieties sown May 10 in triplicate close-drilled plots on disked corn stubble.

Variety	C. I. No.	Height (In.)	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Redwing	320	22	7.1	51
Linota	244	22	4.4	51
Bison	389	21	4.4	49
Natural Hybrid	744	21	3.6	48
Rio	280	19	3.4	48

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 October 10, 1940 No. 16

Personnel (Sept. 26 - Oct. 10) and Field Station (Sept. 16 - 30)

PERSONNEL ITEMS

Mr. L. W. Kephart returned on October 11 from a 3-day trip in company with Mr. Mason Hein of the Division of Forage Crops and Diseases. They examined turf at the Montrose Pennsylvania Pasture Experiment Station to observe the effect upon the weed flora of the experiments on pasture improvement.

Dr. M. A. McCall left on October 1 for a one month's trip to inspect Bureau and Division plant research in the field and to confer with Bureau, Division of Cereal Crops and Diseases, and cooperating agency personnel relative to plans and conduct of the work.

RECENT PUBLICATIONS

A. T. Bartel and D. C. Aepli. Flax Yields High at Mesa. Ariz. Farmer 19(20): 7. Sept. 28, 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

Allan D. Dickson. A Collaborative Study of the Ferricyanide Method for the Determination of Diastatic Power of Malt. Cereal Chem. 17(5): 645-649. September 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

E. S. McFadden and E. A. Miller. Flaxseed Production in South Texas. Tex. Agr. Expt. Sta. Mimeo. Cir. [Unnumb. Pub.] 6 pp. October 1, 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases, the Extension Service, and the Texas Agricultural Experiment Station.)

Martin Nelson and C. Roy Adair. Rice Variety Experiments in Arkansas. Ark. Agr. Expt. Sta. Bul. 403, 28 pp. June 1940. (Cooperative investigations of the Arkansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

M. M. Rhoades. Studies of a Telocentric Chromosome in Maize with Reference to the Stability of Its Centromere. Genetics 25(5): 483-520, illus. September 1940.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1142

October 9, 1940

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

The American Association for the Advancement of Science will hold its meetings in Philadelphia, Pa., December 27, 1940, to January 2, 1941. Members of your staff who are to submit abstracts of papers to be presented at the meetings should be requested to submit these abstracts in the near future, as in many cases they must be in the hands of the secretaries of the various organizations the latter part of October or early November. It is desirable that they be forwarded to this office for approval promptly in order that they may reach the secretaries on the dates required.

It is suggested that you also bring to the attention of the members of your staff the importance of submitting the complete papers as soon as possible. If practicable, they should be sent to this office for approval not later than December 10. In exceptional cases, papers submitted after December 20 will be given approval.

Recommendations for attendance by members of your staff at Government expense should be submitted not later than November 15. Careful consideration should be given these recommendations, as it is not certain that attendance of anyone at Government expense will be allowed. Full information regarding the purpose of attendance and the objectives to be accomplished should be included for each individual whose attendance is desired.

Kindly submit, also, not later than December 10, your recommendations for attendance of employees of your Division who desire to attend at their own expense other than salary, if such authority is granted.

Sincerely yours,

P. V. Cardon
Acting Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (Oct. 2)

This has been the driest September on record. The rainfall was 0.25 inch, as compared with a normal of 3.13 inches. There was an excess of moistu during August of 1.42 inches. Temperatures have been normal. The maximun

temperature was 91° on the 19th and the minimum 35° on the 25th. Frost occurred in certain areas but so far has not done any injury at University Farm.

The winter wheat nursery and field plots were sown at University Farm on September 11 to 13. About 60 to 75 percent of the plants have emerged in the plots but rain is needed to germinate the remainder of the seed.

Winter wheat and rye on the farms germinated more satisfactorily and are making a good fall growth.

Nursery and plot threshing of the spring cereals has been completed and the grain is now being cleaned and weighed.

Drs. McCall and Aamodt were recent visitors at the Station.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Oct. 1)

Weather conditions during September were favorable for preparation of seedbeds for fall grain and also for harvesting of corn and cotton. Precipitation was recorded on only three days with a total of 1.02 inches, which is 1.41 inches below normal. The mean temperature for the month was 75.6°, which is 2.0° below normal.

Seedbeds for fall grain were prepared during the month and are in good condition, although very little moisture is present in the surface soil. Some grain is being planted in dry soil, but on a few fields where there was sufficient moisture the grain has emerged. Corn and cotton harvesting is nearly finished.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 2)

The drought was finally broken on September 22 by a rain of 1.03 inches followed by several measurable showers. The rain was too late to benefit sorghum grain yields but some of the seed will be better filled than without the moisture. Yields of sorghum grain and broomcorn brush will be near the minimum this season. Harvesting of grain sorghum varieties has started and the forage yields will be relatively better than the grain yields.

Recent moisture has stimulated wheat seeding and most of this region's wheat is planted and emerging.

The maximum temperature for the last half of September was 98° on the 17th, while the minimum was 45° on the 21st. The precipitation was 1.64 inches, which gives a total of 1.84 inches for the month.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat and Flax Improvement, O. A. Vogel) (Oct. 1)

September rainfall at Pullman totalled 3.03 inches, as compared with an average of 1.11 inches. As a result of the unusually heavy rainfall, a very high proportion of the wheat land will be seeded this fall.

Many of the farmers in Whitman County are following the recommended Soil Conservation methods of preparing seedbeds less conscientiously this year than they did last year. For example, approximately one-half of the winter wheat stubbles have already been burned this fall in the vicinity of Pullman, as compared with only a few stubbles having been burned last year. Last year the practice of seeding on so-called trashy fallow was very common in eastern Washington, but this year such a practice is considerably less common.

Following a late July rain a number of farmers in the Cheney-Reardon district seeded their fall wheat. These seedings are now from 6 to 10 inches tall, and unless pastured soon will probably go to straw next year. Most of the farmers in eastern Washington, however, delayed their seeding operations until about the middle of September.

The varietal nursery at Pomeroy was seeded on September 23, the one at Pullman on September 26, but the one at Walla Walla will be delayed until about October 15. Approximately 75 kernels of each of 746 short F_3 and F_4 plant selections were inoculated with bunt and seeded at Pullman on September 27. This date of seeding ordinarily is considered too early for maximum bunt infection. but optimum for the production of tall straw. However, as a result of subsequent and probably continued cool, wet weather, it is very probable that the susceptible lines will produce high percentages of bunt. These new hybrid selections were taken from 14 parent combinations.

The seeding of the bunt-inheritance nursery will be delayed until after the third week in October.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Sept. 30)

The long summer drought was broken early in September with considerable above normal rainfall. This condition was ideal for fall-sown grains as well as for range conditions.

Most of the experimental winter wheat has been seeded except for some smut studies which will be sown when cooler weather prevails.

Extreme interest has developed in the growing of hybrid corn throughout the State. In several counties the acreage appears to have doubled this year and predictions for greater increases next year.

The writer and Mr. D. C. Tingey made a rather extensive survey of corn hybrid tests. A large part of these were commercial field trials sponsored by commercial seed interests. It has been interesting to note the good yields of both grain and silage in most areas visited. Tests at elevations between 6,000 and 7,000 feet showed remarkable growth of corn varieties and hybrids this season. If this can be taken as an average year, corn is a highly productive crop well adapted to the important agricultural areas of Utah. Corn serves as a good feed crop in sections where alfalfa wilt is serious, besides fitting well into the rotation of alfalfa and small grains. Results of this season have been very encouraging.

The mean temperature for September was 60.0°, as compared to 60.4° for an average. The precipitation totaled 3.18 inches, as compared to 1.10 inches for a 20-year average.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Oct. 2)

The precipitation during September totaled 2.72 inches, which was well over twice the normal of 1.12 inches. The mean temperature of 79.8° was about normal. The maximum and the minimum temperatures were 101° and 56°, respectively.

Most of the sorghum selections in the nursery have headed. The frequent rains seemed to have slowed down plant development, which may have been due to increased cloudiness. Using the hot water method, about 150 heads have been emasculated, and crosses made between varieties resistant to Pythium root rot. Hybrid vigor and yield will be studied next year.

Dr. Siang-Yin Ko, Rice Geneticist, National Agricultural Research Bureau, Chung King, China, was a Station visitor on September 19.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 October 25, 1940 No. 17

Personnel (Oct. 11 - 25) and Field Station (Oct. 1 - 15).

PERSONNEL ITEMS

Dr. B. B. Bayles will leave Washington October 27 for Illinois, Indiana, Ohio, and Missouri. At St. Louis, Mo., he will confer with research workers on grading of soft red winter wheat, and in Illinois, Indiana, and Ohio with Federal and State workers regarding cooperative wheat investigations.

Dr. S. C. Salmon left Washington on October 25 for Kansas and Iowa to consult with agricultural experiment officials regarding the weed research program and the wheat quality research program in Kansas.

RECENT PUBLICATIONS

E. G. Heyne and Arthur M. Brunson. Genetic Studies of Heat and Drought Tolerance in Maize. Amer. Soc. Agron. Jour. 32(10): 803-814, figs. 1-2. October 1, 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Amy Millang and G. F. Sprague. The Use of Punched Card Equipment in Predicting the Performance of Corn Double Crosses. (Note) Amer. Soc. Agron. Jour. 32(10): 815-816. October 1, 1940. (Contribution from the corn improvement program at Ames, Iowa, conducted by the Division of Cereal Crops and Diseases, in cooperation with the Farm Crops Subsection, Iowa Agricultural Experiment Station.)

H. C. Murphy, L. C. Burnett, C. H. Kingsolver, T. R. Stanton, and F. A. Coffman. Relation of Crown Rust Infection to Yield, Test Weight, and Lodging of Oats. Phytopath. 30(10): 808-819, fig. 1. October 1940. (Cooperative investigation between the Division of Cereal Crops and Diseases and the Botany and Plant Pathology Section and Farm Crops Subsection of the Iowa Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Oct. 10)

Rather extreme weather conditions prevailed in July, August, and September. During each of these three months the average maximum temperature was below 90°. This is a 10-year record. The average minimum temperature for September, 65°, was the lowest in ten years. The maximum temperatures for July, August, and September were 94, 93, and 94°, and the minimum were 70, 63, and 50°, respectively.

The precipitation of 5.70 inches in July was slightly under the 30-year average. The August precipitation of 37.48 inches broke all monthly rainfall records at this Station. The previous record rainfall for any one month was 17.04 inches in December, 1912. The total rainfall of 3.69 inches in September is slightly under the 30-year average. The total precipitation to date for 1940 is 82.51 inches. The record annual precipitation for Crowley is 71.52 inches in 1923.

Regarding the torrential rains in August the Weather Bureau reported that: "Over an area centering in Lafayette, Acadia, and Vermilion Parishes rainfall records for the State were broken as to monthly fall (all months), with over 37 inches at Lafayette and Crowley and 36.12 inches at Abbeville; and were also broken as to 4-day rainfall, from the 6th to the 9th, with 33.71 inches at Crowley and 31.66 inches at Abbeville. The 24-hour falls of 19.76 inches at Crowley and 19.63 inches at Lafayette, on the 8-9th, have been exceeded in this State by only the record fall of 21.40 inches at Alexandria on June 15-16, 1886."

As a result of the excessive rains, the Station was covered with water to a depth of 4 to 6 feet from August 8 to 16, inclusive.

When the water first receded, the indications were that the rice on certain plots that was near maturity would not be severely damaged and that the rice on plots that were partly headed would continue to head. In a short time, however partly-headed plants started to produce branches from the main culms. Certain varieties, especially sensitive ones, succeeded in producing what might be nearly a normal yield from as many as three panicles borne on branches from one original culm. The greatest recovery is being made by varieties that were just commencing to boot. This ability to recover varied with different varieties.

Late-maturing varieties, such as Rexoro, that had not begun to boot showed culm elongation but no evidence of heading for nearly two weeks. After that delay panicles began forming and the plants assumed normal behavior, except that in Rexoro the panicles were extended farther above the leaves than is usual. If the weather permits, Rexoro in the fertilizer plots will make a satisfactory yield.

Late-seeded Blue Rose rice that was severely killed back has recovered sufficiently to produce a satisfactory yield on rather short straw.

Fortuna rice in the rotation experiments has apparently produced a second growth so near normal as to make the results worthwhile.

All dry cultivated crops on the Station were a total loss.

Commercial crops that were subjected to the same or similar treatment are behaving in the same manner as those on the Station. Fortunately, the commercial area affected, especially in Acadia Parish, is comparatively small. The damage was more extensive in Vermilion Parish.

Excellent harvest weather prevailed during the greater part of September.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Sept. 6)

REPORT FOR THE SEASON OF 1940

The small grain crops obtained a very late start in the fall of 1939, owing to a very severe summer and fall drought. This drought continued until December making the planting of small grains necessary under very difficult conditions. Stands did not emerge until the first of December and were, in many instances, irregular and poor. From time of emergence on through the season growing conditions were for the most part good, and final yields of all crops were good, some making very exceptional yields. Although winter temperatures were rather severe for this section, they were rather uniform and the amount of winter-killing to adapted varieties was small. Differential killing which did occur was the most indicative of true winter hardiness ever obtained here. Moisture available for the crop was sufficient but not excessive during most of the season. Above normal precipitation late in May and during June made harvest difficult and caused considerable difficulty and loss in harvesting and threshing. This above normal precipitation also encouraged a stem rust epidemic which threatened serious damage to wheat. Cool temperatures and a long fruiting period probably were responsible for the good yields obtained in spite of the rust. Wheat delivered to the elevators was of poor quality because of rust damage followed by bleaching, sprouting, etc., in the shock.

In our barley experiments, we have just experienced another good season. During the past 5 years when Wintex barley has been in field plat tests, it has average 50 bushels per acre compared to a long time average of barley of only 30 bushels per acre. Our increase field of Wintex barley made nearly 50 bushels per acre giving us more than 1,000 bushels for distribution to farmers. This new variety has gone over well and next year will be widely grown in Texas, as well as some in Oklahoma and Mississippi. We have a large number of orders from Mississippi and had to turn down one order for a carload and several others for 100 bushel lots. The experiment station at Stoneville, Miss, is now increasing Wintex for distribution in that area. It is also to be increased and distributed at the Chillicothe Substation and at Lubbock.

Our best smooth awn hybrid, Harlan Hybrid 1-33-7, is also making a good record at most stations. It has been most promising at Temple, Tex., and it is our plan to name this strain and distribute it from the Temple Substation next year. The first increase seed was grown this year.

In our experimental nursery some very fine yields were produced. Nearly all strains produced more than 50 bushels per acre and a few plats made as high as 90 bushels. Spring barley, due to the cool wet season, made more than double the normal yields. Our breeding work is making nice progress. We grow the second generation of a Wintex x Harlan Hybrid 1-33-7 cross this year. In addition, Dr. Wiebe has crossed these best strains on other varieties resistant to smut and rust. These are coming on for the future.

Our first new oat variety was distributed this season. This new variety, Fultex, from a cross of Fulghum x Victoria, is resistant to smut and crown rust. It is outstanding, compared to any other red oat we have found, in its ability to stand up after it is mature. This is of great value to those farmers who use a combine. To indicate the interest in such an oat, I will say that when it was announced on field day, we took orders for more than 700 bushels in just a few hours. We had about 500 bushels to distribute. Under field conditions it produced about the same as New Nortex. In favorable seasons it probably will not yield as much as the Red Rustproof strains but when rust or storms are a factor, it might mean the difference between a crop and a near failure. We received the following statement from Mr. McNamara of the Delta Branch Station, Stoneville, Miss.: "We were very much impressed with the preformance of Fultex in the plats this year. It stood up at least two or three weeks longer than any other strain. It produced 89.7 bushels per acre, which we consider good. We plan to plant about 10 acres of this variety this year. It is our opinion that if the Delta crop had been planted with this variety this year, that we would have had our crop in much better shape, with cleaner, brighter oats, than with the variety we were using."

Work on the newer oat crosses combining resistance to both oat smuts and rusts is making good progress. Out of an extensive head row nursery this season we obtained about 75 strains of superior qualities. Many of these will be planted in our preliminary nursery this fall. Some additional crosses are to be made this winter with some of the new selections.

The season was very favorable for our wheat breeding work. I feel that we made two or three seasons' progress all in one year. The very heavy infection of stem rust made possible the elimination of all but the most resistant strains. Fortunately we had a very large nursery, over 3,000 strains, so we were able to secure plenty of good material. Most of these crosses will be in the fifth generation next season and many of the strains will be sufficiently homozygous that they may be placed in the yield nursery the following year. Approximately 10 strains were bulked this year even though they were only in the fourth generation. These will be given preliminary trial this year. I am very enthusiastic about these new strains and feel that we shall soon have some very good new wheats for this part of the State. The two most promising of these new crosses are Clarkan-Hard Federation x Hope-Mediterranean and Mediterranean 5933-23-Hard Federation x Hope-Mediterranean.

Our hard winter wheat breeding work appeared more promising this year with the addition of several new crosses to the tests. The second generation of a cross Quivira-Martin-Tennarq 50-33-63 x Hope-Mediterranean, seed of which was smutted last fall, gave us some fine plants resistant to both rust and smut, and much improved grain characters as compared with the Martin-Tennarq. Another cross, Hope-Mediterranean x Oro-Tennarq also appeared very promising. In this cross it appears possible to obtain strains resistant to both rusts and both smuts of wheat as the Hope-Mediterranean strain is resistant to loose smut. Several crosses with Chiefkan offer the possibility of obtaining higher test weight in some of our strains.

In our more advanced nurseries and field plat tests, the most promising strains are hard wheats from the crosses Kawvale x Tennarq and Kanred-Hard Federation x Tennarq. One strain from the Kawvale x Tennarq cross ranked first in our variety test this year. It is resistant to loose smut, leaf rust, and has considerable resistance to stem rust. We are obtaining a milling test on it this year. A large number of strains from the Kanred-Hard Federation x Tennarq cross are now in advanced nursery plats at Denton, Chillicothe, and Amarillo, Tex. Two will be included in the United States Department of Agriculture Uniform Nursery next season. We are obtaining milling tests on ten of them. Two will be placed in field plats at Denton next year. Eight of these strains were among the 10 high ranking strains in our nursery this year, yielding from 35 to 40 bushels per acre compared with 21 for Denton and 26 for Tennarq. The principal objection to these strains is their lack of disease resistance. They are very susceptible to stem rust and to smut.

Owing to the unusually late, cool season this year, spring wheat made very high yields. Mindum durum averaged 59.1 bushels per acre. The new rust-resistant common spring wheats such as Merit, Pilot, Rival, Vesta, and Mercury all produced more than 40 bushels per acre compared with 36.5 for Thatcher and 15.3 for Marquis.

Several research problems were advanced another season. The loose smut varietal study was continued and good infection obtained. Kanvale, Forward, Purplestraw, Zimmerman, Leap, Minhardi, some of the Kanvale x Tenmarq strains, and some of the Hope-Mediterranean strains continued resistant. An inheritance problem with loose smut was started this season. The inheritance of strength of straw problem was continued and some good material grown for study. Another season should see this completed and ready for presentation as a thesis. Several other smaller problems were carried on but will be reported later.

Two unusual wheat plants were found this season. They appear to be male sterile. A few seeds were obtained by artificial and natural cross pollination. These will be grown in the greenhouse this winter by Dr. K. S. Quisenberry.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 16)

The first part of October was dry. The harvesting of sorghum seed has progressed and wheat seeded in well prepared soil is emerging to stands.

Broomcorn plots have been harvested for their very light yields and sorghum plots are being harvested mainly for total crop yields, since most sorghum grain yields are practically nil. Seed from most of the breeding project will be obtained from the thin stands remaining after the violent wind-rain of July 1. If good stands had remained it is probable little seed would be obtained as good stands produced very little seed this year.

The maximum temperature for the first half of October was 94° on the 4th and the minimum for the same period 35° on the 15th. The precipitation was 0.03 inch.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Oct. 17)

After a blistering, almost rainless July the weather in the Plains area was abnormal in the opposite direction during August. Rains occurred frequently during the month and temperatures were below normal. The total rainfall for August was above normal in most parts of Kansas and all late season crops, except corn, were greatly benefited. Although rainfall was deficient for September and the first half of October, the abundant rains of August greatly augmented soil moisture in all parts of the State. Soil moisture conditions in the western half of Kansas are the best they have been at wheat seeding time for many years. As a consequence, the prospects for a wheat crop in that area in 1941 are unusually bright.

One striking result of the excellent wheat seedbed conditions produced by the August rains was the rush of farmers in all parts of the State to sow winter wheat. The bulk of the sowing was the earliest ever recorded. This was due partly to the desire of farmers for early fall pasture and partly to the experience of last season in which early seedings made good crops while late seedings were poor, owing to drying out of the top soil with consequent late emergence and poor root systems.

Another result of the August rains was the early appearance of volunteer wheat, oats, and barley. Volunteer grains now are abundant throughout the eastern half of Kansas. Both leaf and stem rust began to appear on volunteer plants about the middle of September and have increased to alarming proportions in some localities. There also has been considerable spread of rust to fall-sown wheat, especially that which was sown very early. At the present time leaf and stem rust of wheat and stem rust of oats and barley are fairly abundant in all parts of the State. Collections of both leaf and stem rust of wheat have been made in the extreme western part of the State as well as in the east.

Sowing of the rust nursery at Manhattan is nearly complete and many of the earlier sowings have emerged to good stands. Nearly 3,000 rows of winter wheat have been sown most of which consist of hybrid material. Rust work in the greenhouse has been started but has been retarded by high greenhouse temperatures and activities incident to nursery sowings.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Oct. 19)

After a dry spell lasting about two months liberal rains fell during the latter part of September and again during the early part of October. The total precipitation for September was 1.86 inches and that for the first half of October, 2.10 inches. Winter wheat and rye seeded in dry soil early in September, emerged early in October, and have made a luxuriant growth since that time. The ground now is moist enough for effective fall plowing which is unusual at this time of year in this section.

Since the rains came Crested Wheatgrass has grown enough to make excellent fall pasture and prairie grass has greened up to a slight extent.

Field work on the Cereal project is completed except for taking stand notes on the winter grain and weighing up the sorghum varieties.

Dr. J. H. Martin inspected the sorghum varieties on the Substation on September 17.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat and Flax Improvement, O. A. Vogel) (Oct. 1)

The 1940 yields from the varieties in uniform winter wheat nurseries at Pullman, Pomeroy, and Walla Walla, as well as from the field plots at Pullman, are given in the enclosed table. Approximately 50 bushels of Brevon (Turkey-Florence x Fortyfold-Federation-selection 1) have been given to a few selected farmers by the State for large-scale testing during 1941. If the variety responds satisfactorily it will be released for further distribution.

Yields of winter wheat varieties in the nurseries at Pullman, Pomeroy, and Walla Walla, and in field plots at Pullman in 1940.

Variety	C. I. no.	Washington no.	Nursery			Field plots
			Pullman	Pomeroy	Walla Walla	Pullman
Kharkof	1442	1858	75.4	34.0	34.4	43.2
Turkey	6175	326	80.7	32.5	32.2	45.2
Relief	10082	2809	79.2	38.5	37.2	----
Relief x Ridit	11908	3261	69.3	34.7	31.8	----
Do	11909	3262	69.0	32.0	31.0	----
Turkey selection	11530	3260	70.7	31.0	35.2	----
Oro	8220	2550	77.3	34.3	37.7	42.6
Rio	10061	2764	77.8	34.3	37.5	43.0
Triplet	5408	597	76.0	35.7	34.5	45.2
Ridit	6703	2324	68.3	29.7	31.2	45.4
Rex	10065	2825	68.8	30.5	34.8	47.0
Rex M-1	11689	2938	70.5	35.8	37.7	47.7
Rex M-2	11690	2939	72.8	34.5	34.5	----
Athena	11693	2828	78.2	39.3	38.2	----
Elgin	11755	3147	83.5	37.3	40.0	----
Hybrid 128	4512	592	68.7	32.3	37.2	44.2
Hymar	11605	2876	76.0	29.5	37.2	42.6
Albit	8275	2517	74.0	29.8	35.5	43.8
Jenkin	5177	526	76.3	29.5	43.7	----
Fortyfold	4156	2438	61.0	34.2	31.5	34.3
Golden	10063	2675	72.2	37.2	36.3	40.2
Brevon	11912	3239	82.2	40.3	33.8	53.8
Oro x Federation-80	11913	3300	73.3	34.8	38.3	54.8
Oro x Federation-1	11914	3299	78.3	29.3	38.3	50.0

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 32 November 10, 1940 No. 18

Personnel (Oct. 26 - Nov. 10) and Field Station (Oct. 16 - 31)

PERSONNEL ITEMS

Dr. B. B. Bayles returned November 8 from a 12 days' trip through Missouri, Illinois, Indiana, and Ohio in the interests of cooperative wheat investigations. Dr. Bayles reports that winter wheat in the soft red winter area is going into the winter in excellent condition.

Dr. Wayne M. Bever was transferred, effective about the middle of October, from Moscow, Idaho, where he has been conducting research with stripe rust and smut to Urbana, Illinois, where he will conduct research on the control of loose smut of wheat, which in recent years has caused heavy losses in the eastern United States, and will cooperate with Dr. C. T. Bonnett in breeding wheats resistant to diseases, particularly the rusts and smuts.

Mr. A. C. Dillman left on November 3 to attend the meeting of the Flax Institute of the United States at Minneapolis, Minn. He also will confer with Federal and State officials at St. Paul., Minn., and Fargo and Mandan, N. Dak., with reference to flax research.

RECENT PUBLICATIONS

Holton, C. S., and Suneson, C. A. Results from the Uniform Bunt Nurseries in the Western Region in 1940, with Averages for 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumb. Pub.] 2 pp. November 5, 1940. [Mimeographed.]

Wiebe, G. A. Some Problems in Breeding Barley for Industrial Uses. The Brewers Digest 15(11): 43-45, illus. October 1940.

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of Personnel
Washington, D. C.

Date: October 29, 1940

No. P-119

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

Subject: Unsafe Storage of High Explosives

Recent inspections of powder magazines and ordinary buildings used for storing explosives have disclosed a number of cases of unsafe storage, lack of care of explosives while in storage, and high explosives stored in buildings which afforded little protection against theft.

In order to prevent serious accidents and thefts, it is urged that each bureau or office now using explosives on any project, or which has previously used explosives, make a thorough check of their magazines and warehouses to make sure that all explosives are being properly stored and cared for. Old dynamite, particularly where the cases have not been periodically turned, will become very dangerous when the nitroglycerine has soaked into the box. This is shown by a greasy spot or spots in the box.

Where such conditions are found, men thoroughly familiar with handling explosives under such conditions, preferably experts from the manufacturer of the explosives, should be called in to inspect and destroy any cases they consider dangerous.

It is difficult to build a magazine that cannot be opened when not guarded day and night. An ordinary magazine is not easily entered when it is visited by a watchman at frequent intervals. It is urged that serious consideration be given to the disposal of all stores of explosives that are not immediately needed or that they be removed to a place that will be guarded.

P. L. Gladmon
Acting Director of Personnel

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B.P.I. Memo. 1148 November 4, 1940

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

The Department has been asked by the Acting Postmaster General to cooperate in the loan of vehicles suitable and available for postal purposes during the coming Christmas season. I quote below a paragraph from the request from the Acting Postmaster General:

"The Department will be grateful for every possible assistance in placing at the disposal of the postal service as many vehicles as possible for this special purpose. Owing to present conditions, it is anticipated that the demand for vehicles in the postal service this year will be greater than ever before, hence the urgent appeal for cooperation to the fullest extent."

We would hardly be justified in having trucks taken from dead storage for loan to the Post Office as this would increase our storage costs substantially. It should be borne in mind that these trucks will be subjected to rigorous use, being driven in large part by temporary employees delivering parcels night and day under severe weather conditions. While we desire to cooperate wherever this can be done without disadvantage to our work, it is necessary to determine the practicability of loaning trucks by the conditions obtaining in each case. Heads of divisions should use their own judgment in determining where loans may be practicable.

Very sincerely,

M. A. McCall
Acting Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Nov. 6)

The total precipitation of 0.16 inch in October was the lowest ever recorded at this Station, with the exception of October 1924, when no rain occurred. The average maximum temperature was 82° and the average minimum and mean temperatures were 57° and 70°, respectively.

The exceptionally dry weather enabled most farmers to continue without interruption until rice harvest was completed.

Commercial rice fields that were delayed due to total submergence by flood water in August were harvested the latter part of the month. Those damaged most severely will not be cut before the middle of November and some will not be harvested if frost occurs within the next few days.

Mild weather is enabling Rexoro rice in the fertilizer experiments on the Station to mature normally. Much of it will be ready for harvest within the next week. The indications are that the yields in most cases will be comparable but somewhat reduced by cold strong winds that occurred intermittently during heading and maturity.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Nov. 1)

Clear, warm weather during October was very favorable for seeding small grains and harvesting cotton. Rains of 2.19 inches on October 29 and 30 brought the total for the month up to 2.34 inches, about an inch below normal. The mean temperature for October, 69.2°, was 3.6° above normal. The maximum temperature recorded was 93° and the minimum, 39°.

All experimental small grains were sown during the month. Seedbeds were dry and in some instances rather cloddy but most of the grain was sown under good conditions. Rainfall at the close of the month will cause rapid germination. Due to the dry weather of September and October there has been no small grain for pasture for livestock.

Cooperative small grain nurseries were seeded at Iowa Park on October 5 and at Greenville on October 17.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Nov. 1)

The last half of October was pleasant but relatively dry. Two showers are causing October seeded wheat to germinate but there is no reserve moisture. No killing frost has occurred yet in this vicinity and it is possible that all sorghum and broomcorn seeds will be harvested before frost, for the first time on this Station.

Maximum temperature for last half of October was 89° on the 18th and the minimum for the same period was 38° on the 29th. The precipitation, limited to two showers, aggregating 0.66 inch raised the total for October to 0.69 inch.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Oct. 30)

In spite of one of the driest seasons on record, opportune rains totaling 1.64 inches from September 21 to 30 put farm fields and station land in good condition for seeding wheat.

Rate and date of seeding experiments of wheat and barley on Sept. 15, Oct. 1, and Oct. 15, all emerged to good stands, as did the plots and advanced nurseries seeded on October 8 to 10. Later seedings of head rows, winter barley and rye emerged poorly to scattered thin stands. A 0.40 inch rain on October 27 is expected to complete the germination of all seed sown.

The weather has been so warm that seeding of the uniform bunt nursery has been postponed but probably will be sown by November 1 or soon thereafter.

Approximately 75 to 80 percent of the wheat in northwestern Oklahoma has been seeded and most of it has emerged to good stands. However, in spite of moderately warm weather during the past several weeks, growth has been very slow. Plants are rooting slowly. Some farmers are pasturing their wheat, even though the cattle are pulling up more plants than is desirable. The recent rain should remedy that condition, however.

Frost has been noted on car tops, roofs, and lawns in scattered areas in Woodward, although the lowest temperature recorded on the Station to date is 34°.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Nov. 1)

Fall weather conditions at Lincoln have been very good for winter wheat and Dr. T. A. Kiesselbach reports that the growth is the best since 1933. Sufficient moisture was available to allow seeding on the normal date, or during the last of September. Germination was rapid and good stands were obtained in both nursery and plots. Continued warm weather caused the ground to dry rapidly during the last half of October but generous rains the last few days of the month greatly improved conditions. The total October rainfall at the Agronomy Farm was 2.73 inches which is above normal. No hard freeze has occurred as yet.

Wheat, barley, and rye seeded in flats for freezing studies are making good growth. The freezing work will be started on November 2 when a replication of winter barley will be tested.

The condition of winter wheat over the State is rather spotted. In the far west and eastern parts wheat has made good growth, but until very recently it has been very dry in the central counties. Much wheat south and east of Lincoln was seeded before September 15 in spite of warnings about Hessian fly. Fly infestation is evident in volunteer wheat at Lincoln, and light infestation occurred in wheat seeded September 15, so some of these early seeded fields may be damaged.

Owing to the heavy rainfall in eastern Nebraska during August there is an abundance of volunteer wheat, oats, and barley. Leaf and stem rust are fairly common and infections of both can now be found on fall-seeded wheat.

Reports from Alliance indicate that stands were obtained on winter wheat there but more moisture is needed as usual. At North Platte seeding was delayed until rather late because of dry seedbeds but sufficient moisture is now available to carry the crop into the winter.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Nov. 1)

The month of October was unusually warm and wet. The total precipitation, 2.25 inches, was the highest for October since 1924. The maximum temperature was 80° on the 22d, and the minimum 24° on the 17th. The winter wheat emerged about September 30 after being soaked with 1.86 inches of rain, mostly in the latter part of September. Being further benefited by the liberal rains of October, the winter wheat now looks the best in many years and should be in good condition to stand the winter.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Oct. 31)

Mild weather with above normal precipitation prevailed during October. Clear, warm days between storms gave ample time for harvesting fall crops and seeding winter wheat. Harvesting on the Experiment Station farm is completed and only some winter wheat smut experiments remain to be seeded. A rather large acreage of sugar beets in northern Utah is still to be harvested but harvesting conditions remain favorable.

In the winter wheat areas of the State better than average stands and growth are the rule. No frost injury is yet apparent even in tender crops and flowers, although a minimum of 28° was recorded on two occasions. Rather heavy snows fell in the mountains, reports indicating around 15 inches at 8,000 feet and above.

The precipitation for the month totaled 1.96 inches making the yearly total 15.57 inches, which is about normal. This condition is encouraging in the face of the very dry summer months.

On October 25 the writer visited Dr. M. A. McCall and the station workers at Aberdeen, Idaho.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Nov. 2)

The mean temperature for October, 69.4°, was one degree above normal. The maximum and minimum temperatures were 95° and 37°, respectively. The precipitation was 0.13 inch, compared with a normal of 0.61 inch.

The increase blocks of hard red spring and durum wheat hybrids were seeded at Mesa on October 18. The first seeding in the date of seeding and fertilizer tes with flax was also made.

About half of the selections in the sorghum nursery at Tucson are mature. Harvest probably will start in a week or 10 days.

Dr. M. A. McCall was a visitor on October 8.

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Vol. 32 November 25, 1940 No. 19

Personnel (Nov. 11 - 25) and Field Station (Nov. 1 - 15)

PERSONNEL ITEMS

The following members of the Division were authorized or were expecting to attend the meetings of the American Society of Agronomy to be held at Chicago, Ill., December 4 to 6, 1940: D. C. Anderson, E. R. Ausemus, W. M. Bever, D. H. Bowman, A. M. Brunson, L. E. Compton, A. D. Dickson, J. G. Dickson, L. S. Evans, E. G. Heyne, P. E. Hoppe, M. T. Jenkins, C. O. Johnston, R. W. Jugenheimer, M. N. Levine, M. A. McCall, J. H. Martin, V. H. Morris, J. G. O'Mara, H. C. Murphy, K. S. Quisenberry, S. C. Salmon, E. R. Sears, R. G. Shands, J. B. Sieglinger, G. M. Smith, Luther Smith, R. O. Snelling, L. M. Stahler, T. R. Stanton, J. C. Stephens, G. H. Stringfield, A. F. Swanson, F. L. Timmons, and G. A. Wiebe.

Dr. G. A. Wiebe, also, will attend the meeting of the Malt Research Institute at Chicago, Ill., December 6, 1940.

RECENT PUBLICATIONS

J. J. Curtis, J. F. Brandon, and R. M. Weihing. Foxtail Millet in Colorado. Colo. Agr. Expt. Sta. Bul. 461: 4-12. November 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Colorado Agricultural Experiment Station.)

Helen Johann. Occurrence of Scolecospore-Producing Strains of Diplodia zeae in the United States. (Phytopath. Note) Phytopathology 30(11): 979-981, illus. November 1940.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Nov. 18)

The field work on the cereal project is about completed for the season. The yields for the sorghum varieties have not yet been computed. The grain yields, however, will be light due to extreme summer temperatures, diseases, and damage from birds. The rainfall became more favorable at the close of September. As a result of this favorable moisture full stands of

wheat were obtained over the entire area. A year ago moisture conditions were so unfavorable that very little wheat germinated until the following March. This year many fields of wheat have made an excessive growth that is too rank for the best development of the crop in 1941.

Much pasturing of winter wheat is being carried on in the western end of the State. Shipments of sheep, lambs, and beef cattle into the area are the highest in several years. The livestock will be grazed during the winter months and later moved to the terminal markets on a transit basis.

A severe blizzard struck this area on November 10. Temperatures dropped to zero at Hays and to still lower levels in the western end of the State. These low temperatures have stopped plant growth especially of wheat, 30 to 40 days earlier than normal.

Feed crops will be plentiful over most of western Kansas. Evidence of weak neck and charcoal rot have been found in many of the grain sorghums and losses from these two diseases will be heavy in the territory. Twenty to fifty percent losses from lodging are common.

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Official Messenger of the Division of Cereal Crops and Diseases
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Vol. 32 December 10, 1940 No. 20

Personnel (Nov. 26 - Dec. 10) and Field Station (Nov. 16 - 30)

PERSONNEL ITEMS

The following named members of the staff of the Division of Cereal Crops and Diseases were among those in attendance at the meetings of the American Society of Agronomy held at Chicago, Ill., from December 4 to 6, 1940:

C. R. Adair
D. C. Anderson
E. R. Ausemus
A. M. Bever
A. M. Brunson
L. E. Compton
A. D. Dickson
J. G. Dickson
L. S. Evans
E. G. Heyne
M. T. Jenkins
C. O. Johnston
R. W. Jugenheimer
M. A. McCall
J. H. Martin
H. C. Murphy
K. S. Quisenberry
S. C. Salmon
R. G. Shands
J. B. Sieglinger
G. M. Smith
R. O. Snelling
L. M. Stahler
T. R. Stanton
J. C. Stephens
G. H. Stringfield
A. F. Swanson
F. L. Timmons
G. A. Wiebe

The following papers were presented:

Early Generation Testing for Yield, Quality, and Other Characters, by E. R. Ausemus.

Objectives in Breeding for Disease Resistance, by C. O. Johnston.

Physiological Responses in Sorghum: Their Inheritance and Role in Adaptation, by R. E. Karper and J. R. Quinby.

Objectives in Crops Breeding, by M. A. McCall.

Hydrocyanic Acid in Sorghum, by J. H. Martin.

Breeding for Disease Resistance in Oats, by H. C. Murphy.

The Application of a Method to Determine the Scab Disease Reaction to Barley Varieties, by R. G. Shands.

Objectives in the Sorghum Breeding Program, by J. B. Sieglinger.

Shading by Crop Plants, with Reference to the Control of European Bindweed, by L. M. Stahler.

Breeding for Cold, Heat, and Drought Resistance in Oats, by T. R. Stanton and F. A. Coffman

Progress Toward the Production of Hybrid Sorghum Seed, by J. C. Stephens.

Natural Selection in Varietal Mixtures of Winter Wheat, by A. F. Swanson and H. H. Laude.

Tillage and Cropping for the Control and Eradication of European Bindweed, by F. L. Timmons.

The following officers were elected for 1941:

President: Dr. L. E. Kirk, University of Saskatchewan, Saskatoon, Sask.

Vice-President: Dr. R. Bradfield, Department of Agronomy, New York (Cornell University) Agricultural Experiment Station, Ithaca, N. Y.

Chairman, Crops Section: Dr. C. J. Willard, Department of Agronomy, University of Ohio, Columbus, Ohio

Chairman, Soils Section: Dr. C. E. Kellogg, Division of Soil Survey, Bureau of Plant Industry, U. S. Dept. of Agriculture, Washington, D. C.

Secretary-Treasurer: Dr. G. G. Pohlman, University of West Virginia, Morgantown, West Va.

Editor: Mr. J. D. Luckett, New York Agricultural Experiment Station, Geneva, N. Y.

Fellows-elect were Dr. L. F. Graber, Dr. P. C. Mangelsdorf, Dr. F. W. Parker, and Dr. H. R. Smalley.

Dr. H. L. Shands of the Department of Agronomy, University of Wisconsin, Madison, Wis., arrived in Washington on December 9 to consult with various members of the Bureau of Plant Industry and to discuss the small grain breeding program at Wisconsin before the Genetics Seminar.

RECENT PUBLICATION

R. W. Woodward and D. C. Tingey. Velvon, A New Smooth Awned Barley. Utah Agr. Expt. Sta. Bul. 293: 3-11. November 1940. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Dec. 9)

A new precipitation record was established for November, with a total of 15.17 inches. The previous record for November was 14.92 inches in 1929. The 30-year average is 4.30 inches.

The maximum temperature for the month was 84°, the minimum 27°, and the mean 60°. Last year the maximum was 82°, the minimum 30°, and the mean 57°.

The first ice this fall was observed on November 14.

The frequent and very heavy rains caused much delay in the threshing of late-maturing fields of commercial rice. Scattered fields remained unthreshed on November 30. Most of the commercial rice that was cut or threshed in late November in this vicinity was in fields of Rexoro, that had been retarded by the August flood.

The yields from commercial fields of rice, in this vicinity, that were affected by the August flood varied from total losses, in rather small areas, to yields from about 7 to 14 barrels per acre. Low yields were common because of widespread damage to early-seeded Blue Rose that was about 50 percent headed when the fields were submerged. Late-sown Blue Rose recovered rapidly after the flood and in some instances produced practically a normal crop. Early-seeded Rexoro rice suffered heavily because it was injured at heading time, while late-sown Rexoro was so retarded that it did not mature fully before killing frosts. Rexoro yields also were reduced by exceptionally cool weather in September.

Rain has prevented threshing on the Station and the indications are that this operation may not be completed until late December. In only three of the fertilizer experiments was the growth sufficiently uniform to be harvested for yield.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Dec. 1)

Precipitation during November amounted to 6.31 inches, or 4.12 inches above normal. Very little run-off occurred owing to the slow rainfall and the previously dry soil and that all rains fell slowly. The mean temperature was 51.5°, or 2.8° below normal. The minimum temperature of 17° on the 15th caused serious thinning in the experimental oat nursery but no damage in any other planting. The oats in another nursery on a different soil type were not damaged. Flax in a winter hardiness test was injured seriously.

Nearly all small grain plantings emerged the first week in November following rains at the end of October. Growth has been rather slow owing to the cool weather and no grain pasture has been available. Small grains are in fair condition, however, and moisture is ample to carry them through the winter. A bunt nursery was planted late in the month and is now emerging.

Strength of straw and shattering tests of nursery strains are being made. The annual report is nearly completed.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Nov. 30)

The first snow of importance occurred on November 9 when about 4 inches fell. This was followed by five days of unusually cold weather, the minimum being about 22° below zero on the 14th. Subsequent warm weather caused the snow to melt and the ground was bare until the closing days of the month when about 2 inches of snow fell. So far we have escaped the severe storms of snow and wind that have visited some areas. The precipitation was near normal, being 0.49 inch.

Winter wheat and rye were well protected by snow during the coldest weather and should be in good condition at present.

Progress is being made on the annual report. In computing the nursery yields it is interesting to note that Ceres, which has been surpassed in yield by newer varieties in 1938 and 1939 owing to rust, hopper injury, or other causes, ranked at the top among the standard varieties used as checks in 1940. Below are given the yields and test weights of four varieties used as checks in 1940, showing 1940 results and 4-year averages for the period, 1937-1940. They are arranged in order of yield in 1940, the data for this year being averages of 15 rows of each variety.

Variety	Yield (Bu. per acre)		Test weight (Lbs. per bu.)	
	1940	4-year av.	1940	4-year av.
Ceres	26.8	17.7	58.1	56.4
Pilot-B	25.4	20.9	56.9	56.2
Thatcher	24.8	18.5	56.6	55.5
Rival	23.3	19.4	55.9	56.1

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Dec. 2)

Good growing weather continued up to the week of Thanksgiving when a sudden cold spell following an eight-inch snow indicated the arrival of winter. Temperatures on November 23 and 24 were 11° and 10° below zero, respectively. These are the lowest November temperatures for ten years.

Since that time, spring-like weather has returned and the ground is now bare over most of the State. Practically all field operations have ceased except for plowing on the drier areas.

Winter wheat appears to be still in good condition, at least where it was covered with snow during the sub-zero weather. Although only casual observations have been made, many wheat fields still show a dense green cover and give promise of excellent prospects.

Precipitation during the month totaled 1.21 inches, which approximates the mean of 1.26. The accumulated yearly rainfall of 16.78 inches is already above the average for the entire year. A fair snow cover of one foot or more is reported in the higher mountains which is encouraging for this time of year.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Dec. 4)

The first killing frost of the fall occurred on November 11, nine days earlier than normal. The mean temperature was 55.4°. The precipitation for the month was 1.62 inches, or exactly twice the normal amount.

The sorghum nursery has been harvested but not threshed due to the high amount of rainfall keeping the heads too damp for threshing. However, the last week has been clear and the threshing will be done in the next few days.

The seedings of small grain varieties and selections at Tucson has started and will continue intermittently for the next 10 days.

NOTICE

This issue of the Cereal Courier is the last for the calendar year 1940. The next issue will be dated January 10, 1941.